Corporate Environmental Governance in Ghana: Studies on Industrial Level Environmental Performance in Manufacturing and Mining

A thesis approved by the faculty of Environmental Sciences and Process Engineering at the Brandenburg University of Technology in Cottbus in partial fulfilment of the requirement for the award of the academic degree of PhD in Environmental and Resource Management.

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Date of the oral examination: 19th January 2010

Umweltverträgliche Unternehmensführung in Ghana: Eine Studie zum umweltbewussten Wirtschaften auf der industriellen Ebene am Beispiel der verarbeitenden Industrie und des Bergbaus

Von der Fakultät für Umweltwissenschaften und Verfahrenstechnik
der Brandenburgischen Technischen Universität Cottbus
zur Erlangung des akademischen Grades eines PhD
genehmigte PhD Thesis

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Declaration

I hereby declare that except for references to other peoples' work, which have been duly acknowledged, this work is original and was carried out by me Daniel Nukpezah under the supervision of Prof. Dr. rer. nat. Jürgen Ertel.

DANIEL NUKPEZAH

…….

Dedication

To my wife Sylvia, for her endurance and long suffering during the long periods I have been away

List of abbreviations and acronyms

BOD	Biological Oxygen Demand
CAER	Community Awareness and Emergency Response
CEPPI	Corporate Environmental Performance Perception Index
CERES	Coalition for Environmentally Responsible Economies
COD	Chemical Oxygen Demand
CSR	Corporate Social and Environmental Responsibility
DC	Developed Countries
DFE	Design for Environment
ECCR	Ecumenical Committee for Corporate Responsibility
EIA	Environmental Impact Assessment
EMS	Environmental Management System
EPA	Environmental Protection Agency
EPC	Environmental Protection Council
EPR	Extended Producer Responsibility
ER	Environmental Responsibility
EU	European Union
GDP	Gross Domestic Product
GRI	Global Reporting Initiatives
ICC	International Chamber of Commerce
ISO	International Standardization Organisation
LCA	Life Cycle Analysis
LDC	Least Developed Countries
MDGs	Millennium Development Goals
NEAP	National Environmental Action Plan
NRCD	National Redemption Council Decree
OECD	Organisation for Economic Co-operation and Development
PPE	Personal Protective Equipment
SMCD	Supreme Military Council Decree
SMEs	Small and Medium size Enterprises
SWOT	Strength, Weakness, Opportunity and Threat Analysis
TNC	Trans National Corporations
TOR	Tema Oil Refinery
UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Programme
WBCSD	World Business Commission for Sustainable Development
WEEE	Waste of Electrical and Electronic Equipment

Acknowledgements

Work of this nature could not have been possible without assistance of some sort. I first wish to thank Prof. Dr. Jürgen Ertel, Head of the Chair of Industrial Sustainability at the Brandenburg University of Technology, Cottbus for accepting me into his chair and for supervising this work. I thank him for his guidance and direction which made this work possible. Secondly, I extend my profound gratitude also to Prof. Eike Albrecht for being my second supervisor and for providing useful comments on the draft thesis. I wish also to put on record that without the help and support of certain individuals I would not have come this far in my academic pursuit. I wish to extend my appreciation to my sister Gifty for her love and support over the years. I also owe a debt of gratitude to my brother Hope who supported me financially when I first came to Germany.

There are those whose friendship provided lighter moments that allowed me to keep focus which eventually led to the successful completion of this work. Such great friends include Dr. Dieudonne Alemagi of the University of British Columbia, Canada, Dr. Bernard Fei-Baffoe of the Kwame Nkrumah University of Science and Technology in Ghana as well as my colleague Mrs. Bertha Abdu. The voluntary assistance rendered by Mr. Richard Zigli as field assistance during data collection is very much appreciated. My friend Jonathan Hogarh, lecturer at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana was instrumental in collection of aspects of the data for the successful completion of this work. Mr. Albert Adugu was very helpful to me in acquiring relevant maps for this study. Paul Kyei has been a long time friend and all the laughing moments we shared indeed had a therapeutic effect and kept me sane during all the difficult moments. My friends Josephine Kumordzi and Dr. Gladys Lomotey have been helpful during trying moments and I extend a heart of gratitude to them. I thank also my colleague Kehbila Anderson for all those interesting discussions we had. My brother Godwin must be mentioned for making his car available to me, which helped me reach potential respondents and companies quickly during the data collection period.

There is one person too I must mention and that is my wife Sylvia. I thank her for all those phone calls and for providing emotional balance during the lonely periods here in Germany. I wish to thank her also for her long suffering during my long period of

absence from home to pursue academic laurels. Members of the PhD ERM programme at BTU Cottbus are hereby acknowledged as well. Their criticism during presentation seminars helped shape the quality and direction of this work for the better. Prof Chris Gordon of the University of Ghana has encouraged me and shown constant interest in my academic progression and pursuit and I wish to thank him for that. The DAAD through the International office at BTU Cottbus provided some financial assistance during the tail end of my study in Cottbus and I thank them as well for that. My final and greatest gratitude however is to God almighty who made it all possible.

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“The World will not evolve beyond its present state of crisis by using the same thinking that created the situation”
- Albert Einstein

Zusammenfassung

Diese Studie untersucht im Rahmen des Umweltmanagements das umweltbezogene Verhalten von Unternehmen im verarbeitenden sowie im Bergbausektor von Ghana. Diese Forschungsarbeit geht von der Tatsache aus, dass die Industrie zur Umweltverschmutzung, Rohstoffverknappung und zur Nutzung der natürlichen Ressourcen beiträgt. Folglich wird gleichermaßen von der Industrie erwartet, dass sie sich für eine Verringerung der Umweltverschmutzung und die Minimierung der Nutzung von Rohstoffen und natürlichen Ressourcen engagiert. Die Studie bedient sich sowohl quantitativer als auch qualitativer Forschungsansätze, die auf primären und sekundären Datenquellen basieren.

Mit Hilfe der SWOT-Analyse wurde eine Bewertung der für das Umweltmanagement relevanten regulatorischen Rahmenbedingungen durchgeführt und neue Möglichkeiten für ein effektives Umweltmanagement herausgestellt. Darüber hinaus wurden die für das Umweltmanagement verfügbaren politischen Instrumente in dieser Forschungsarbeit sorgfältig analysiert und diskutiert sowie die Umweltinitiativen von Industriezweigen im verarbeitenden Sektor durch vergleichende Analyse auf der Grundlage von Größe und Branche untersucht. Die Studie entwickelte ein Modell, das auf 22 Indikatoren in drei Themengebieten beruht. Dabei handelt es sich um (1) gesetzliche und verordnungsrechtliche Compliance, (2) Umwelt- und Ressourcenschutzinitiativen sowie um (3) Initiativen zur Umweltplanung und Umweltpolitik für die Bewertung des umweltbezogenen Verhaltens der Unternehmen in den verarbeitenden Industriezweigen. Zur Quantifizierung des umweltbezogenen Verhaltens von Unternehmen kam eine fünfstufige Likert-Skala zur Anwendung, mit der das Verhalten in den drei angeführten Themengebieten beurteilt wurde. Die so ermittelten Scores wurden mit Hilfe der Software Microsoft Excel zusammengefasst, gemittelt und ausgewertet. Um das Verhalten der unterschiedlichen Industriezweige mit Hinblick auf wesentliche Aspekte des unternehmerischen Umweltmanagements bewerten zu können, wurde ein "*Corporate Environmental Performance Perception Index* (CEPPI)" entwickelt.

Die Ergebnisse zeigten unter anderem, dass bei Berücksichtigung der Größe die kleinen und mittleren Unternehmen (KMU) in Bezug auf ihr Umweltverhalten hinter den großen Unternehmen zurückblieben. Bei der Betrachtung nach Industriezweig zeigten allerdings die metallverarbeitenden Betriebe relativ schlechte Ergebnisse auf der CEPPI-Skala. Die entsprechenden Resultate wurden diskutiert und Strategien wurden aufgezeigt, mit denen die noch rückständigen Unternehmen ihre umweltbezogene Leistung verbessern können.

Weiterhin untersuchte die Studie Initiativen zum gesellschaftlichen und ökologischen Engagement von Unternehmen (*Corporate Social and Environmental Responsibility = CSR*) in der Bergbauindustrie. Das gesellschaftliche und ökologische Engagement der Unternehmen wurde von der Bergbauindustrie als Ersatz-Indikator für das Umweltverhalten verwendet. Unter anderem zeigten die Ergebnisse, dass der von den Bergbauunternehm*en "verkündete"* CSR-Wert zum Teil dem in den Gemeinden nahe der Minen *"gefühlten"* CSR-Wert nicht entsprach. Die Ergebnisse weisen darauf hin, dass sowohl von den Bergbauunternehmen als auch von den Gemeinden, in denen diese Unternehmen operieren, noch viel mehr getan werden muss, um ein gutes umweltbezogenes Verhalten zu erreichen. Es wurde dargelegt, was aufgrund der Erkenntnisse aus dieser Forschungsarbeit zur Verbesserung des ökologischen Engagements der Bergbauunternehmen getan werden muss.

Eine umfassende Strategie, deren Fokus sowohl auf freiwilligen Kodizes als auch auf regulatorischen Management- und Kontroll-Mechanismen liegt, wie auch eine Strategie zur Institutionalisierung einer Umweltmanagement-Kultur in der verarbeitenden und in der Bergbauindustrie von Ghana wurden erarbeitet.

Schlüsselworte: Unternehmerisches Umweltmanagement (*Corporate environmental governance*), gesellschaftliches und ökologisches Engagement von Unternehmen (*Corporate Social and Environmental responsibility* = CSR), Index für das umweltbezogene Verhalten von Unternehmen (*Corporate environmental performance perception index* = CEPPI), umweltpolitische Instrumente, Umweltmanagementsysteme (UMS), SWOT-Analyse, freiwillige und ethische Verhaltenskodizes, gesetzlicher und verordnungsrechtlicher Rahmen, Institutionalisierung, Kultur des Umweltmanagement.

Abstract

This study analyses corporate environmental performance in the manufacturing and mining sectors of Ghana within a framework of environmental governance. The research is premised on the fact that industry contributes to pollution, raw material depletion and natural resources use. Hence industry is equally expected to play a role in pollution reduction and minimisation of raw materials and natural resources usage. The study makes use of both quantitative and qualitative research approaches drawing on both primary and secondary sources of data.

Through SWOT analysis, an evaluation of the regulatory framework governing environmental governance was carried out and new opportunities for effective environmental management espoused. In addition, the policy instruments available for environmental governance were thoroughly analysed and discussed in this research. Further, through comparative analysis the environmental initiatives of industries in the manufacturing sector were investigated on the basis of size and industry type. The study developed a model based on 22 indicators in 3 thematic areas namely (1) legal and regulatory compliance, (2) pollution control and resource conservation initiatives and (3) environmental planning and policy initiatives to evaluate corporate environmental performance in manufacturing industries. To quantify corporate environmental performance, a Likert-scale 1-5 was applied to assess performance in the 3 thematic areas mentioned. These scores were aggregated, averaged and analysed using Microsoft Excel software. A "Corporate Environmental Performance Perception (CEPPI) index" was developed to evaluate how different industries performed on key corporate environmental governance dimensions.

The results among other things showed that in terms of size, Small to Medium Enterprises (SMEs) lagged behind large enterprises in their environmental performance. In terms of industry type however, "metal works" showed relatively low performance on the "CEPPI" scale. The findings were discussed and strategies to help enterprises that lag behind to improve their environmental performances were given.

In addition to the above, the study further investigated the Corporate Social and Environmental responsibility (CSR) initiatives of the mining industry. Corporate social and environmental responsibility has been used as proxy measure of environmental

performance by the mining industry. Among other things, the findings showed that CSR as *"preached"* by the mining companies was to some extent inconsistent with CSR as "*perceived"* by the mining communities. The evidence thus seems to suggest a lot more has to be done by the mining companies as well as local communities where these mining firms operate to achieve high environmental performance. The implications of this research in terms of what has to be done to improve environmental responsiveness of the mining companies were given.

A comprehensive strategy, focussing on both voluntary codes and 'command and control' regulations, as well as a strategy for institutionalising environmental management culture in Ghana's manufacturing and mining industries were provided.

Keywords: Corporate environmental governance, Corporate social and environmental responsibility, Corporate environmental performance perception index (CEPPI), Environmental policy Instruments, Environmental management systems (EMS), SWOT analysis, voluntary and ethical codes of conduct, legal and regulatory framework, institutionalising, environmental management culture.

1 General introduction

1.1 Background

The publication of Rachael Carson's *Silent Spring* in 1962 marked the beginning of modern environmental consciousness[1]. Since the publication of Carson's work, focus has been shifted from isolated symptoms of environmental degradation to the underlying interconnections. Changing business practices have on the whole been reactive to particular perceived problems, with most polluting industries being pressurized into remedial ecological measures. This pressure on industries to take remedial actions was enhanced by the view of some environmentalists that the world's environmental problems cannot be solved without the resources and talent of Business (Hunter et al., 2007) The wind of changing business practices thus began blowing in the 1960's. However International environmental law as a legal subject and a tool for social change in dealing with the new menace of environmental degradation emerged in its own right at the UN conference on the human environment in 1972 (Hunter et al., 2007; p. 166). As a result several environmentally related International Conventions have since been held and the most noticeable is the Earth summit in 1992. Since then, there have been new efforts at changing business practices and corporate buzz words such as "corporate governance", "corporate environmental protection", "corporate social responsibility" and "product stewardship" have emerged or have been popularized to deal with the new environmental menace.

In the new dispensation of *corporate social responsibility* and *product stewardship*, environmental balancing of products and processes has taken new meaning geared towards minimization of waste generated by organizations especially manufacturing industries in developed economies. However there is inadequate information on corporate environmental management in developing countries especially on the African continent. The existing data are scattered pieces of researches only. The need for capacity building and technology transfer to less developed countries remains an important developmental agenda. As a first step however, there is the need to bridge the information gap and

[1] Carson's work exposed the hazards of the pesticides DDT and eloquently questioned humanity's faith in technological progress and helped set the stage for the environmental agenda

address the data paucity problem between developed and third world countries. There is also the need to understand the extent to which developing countries are embracing the concepts of industrial sustainability as it relates to environmental protection and resource conservation. This will serve as a spring board to fashion out strategies and policies for improved environmental protection in developing countries. This thesis serves this need using Ghana as a case study. It addresses issues related to corporate environmental challenges of developing countries. In addition this thesis seeks to document the extent to which environmental governance is on the corporate agenda in Ghana. First though, a review of the historical evolution of global environmental protection through International Environmental Law is given in the next section.

1.2 Historical perspectives on global environmental protection

Although some environmental treaties date back more than a century, the environment is relatively new focus of international law (Hunter et al., 2007). International environmental law which endeavors to control pollution and the depletion of natural resources within a framework of sustainable development emerged as a legal subject in its own right at the 1972 Stockholm conference on the human environment (Guruswamy, 2007; p 34). The background to this convention relates to mounting international concern over global increase in population, pollution and depletion of natural resources leading to global environmental degradation. The 1972 Stockholm conference was characterized by ideological controversy between rich, developed, industrial countries (DCs) and poor less developed countries (LDCs). The developed countries held that the biggest threat facing the planet is environmental degradation while the least developed countries forcefully articulated the view that the worst pollution and biodegradation are ultimately caused by poverty and consequently, greater development leading to material prosperity would have long-term benefits far outweighing any damage caused by resource use and pollution. This ideological impasse concerning DCs and LDCs opposed views on environmental protection and economic development presented a formidable challenge to international environmental diplomacy (Guruswamy, 2007). The compromise that subsequently worked out held that economic development was not necessarily incompatible with environmental protection and that development could proceed provided it avoided

damaging the environment (Guruswamy, 2007). Thus the preamble to the Stockholm Declaration stated:

"Most of the environmental problems of LDCs are caused by under development"

It further emphasized that LDCs must direct their efforts to development with due regard to the priority to safeguard and improve the environment. Thus development and environmental protection were not to be seen as contradictory. Evidently, the LDCs managed to prevent the formulation of environmental laws and policies contrary to their economic development. The Stockholm conference proved to be one of the most successful UN conferences ever held with 114 out of 131 UN member states represented and had 3 major products:

- The Stockholm action plan to protect the global environment
- The United Nations Environment Program (UNEP) and the related Environmental Fund
- The Stockholm Declaration on the Human Environment

The Stockholm Declaration helped facilitate the subsequent acceptance of the concept of sustainable development. It emphasized *the integration of environment and development*, *reducing or eliminating pollution* and *controlling the use of natural resources.* The Stockholm declaration represented an important milestone in the history of the 'human race' and served as a starting point in the task of making the planet a fitter place for future generations' (Hunter et al., 2007). It forms the basis for environmental reforms and implementation at the national level of most developing countries that hitherto had no concrete environmental policy. It was also considered by some as a first step toward the development of International Environmental law. On another front too, the Stockholm conference catapulted the establishment of national environmental laws and policies. For example in Ghana the Environmental Protection Council (EPC) was established in 1974 following the Stockholm conference in 1972 as an advisory body on pollution and other environmental problems.

Encouraged by the success of Stockholm, the rest of the 1970's saw many international treaties on "first generation" environmental issues, e.g. water and air pollution. A wider variety of organizations got involved in treaty-making and a number of major

conventions were negotiated. This included but not limited to "Paris Convention for the Prevention of Marine Pollution from Land-Based Sources (1974), the Convention on Long Range Transboundary Air Pollution, Vienna Convention on Protection of the Ozone Layer (1985) and the related Montreal Protocol and subsequent amendments, as well as the 1989 Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (Hunter et al., 2007)". Despite the uneasy compromise between DCs and LDCs reflected in the Stockholm Declaration (1972), the clash of two cultures namely environmental protection versus development for western and third world countries respectively continued to hold back the progress of international environmental law. Therefore, the World commission on Environment and Development was constituted by the UN in 1983 to among other things:

- Re-examine the critical issues of environment and development, and formulate innovative, concrete, and realistic action proposals to deal with them
- Assess and propose new forms of cooperation that can break out of existing patterns and influence policies and events in the direction of needed change
- Raise the level of understanding and commitment to action on the part of individuals, voluntary organizations, business, institutes and governments

The report produced thereafter, *Our Common Future* rejected the thesis that impending environmental disaster could only be averted by halting development and economic growth (Guruswamy, 2007). Instead, the report argued that economic growth was both desirable and possible within a context of sustainable development which it defined as:

'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs'

In order to draw up a global plan for sustainable development, the Brundtland Commission called for an International conference as successor to the Stockholm Conference of 1972. Subsequently in 1992, 20 years after, the UN General Assembly agreed to hold a UN Conference on Environment and Development (UNCED or Earth Summit) to take account, inter alia, of the Stockholm Declaration and further develop International Environmental Law. The Earth summit held in Rio de Janeiro in 1992 proved to be a very successful convention, the largest ever held by the UN, attended by 116 Heads of State or Government, 172 states, 8,000 delegates (Hunter et al., 2007).

Although the conference was marked by serious divisions between the developed and the developing world, the two managed to reach a consensus. The Rio earth summit reached agreement among others, on the following:

- The Rio declaration on the Environment and Development
- Two conventions- the Biodiversity Convention and the Climate Change Convention
- Also agreed on was Agenda 21, an 800-page blueprint for sustainable development in the 21st century

The Rio declaration and Agenda 21 proved to be important instruments for drafting or improving the existing environmental legislation at the National level by most governments in developing countries. In many respects, the Rio declaration was superior to the Stockholm declaration in terms of balancing development and environment and providing a context for it- *sustainable development*. It also addressed the concern of most developing countries namely, the right to development within a context of sustainability.

Having reviewed in brief the evolution of international environmental law as a reactionary tool to the environmental threats of the 20^{th} and 21^{st} centuries, it is abundantly clear that averting environmental disaster and business development are not necessarily contradictory provided due diligence is taken in planning and developing appropriate strategies by enterprises to curb any potential environmental disaster. Indeed chapter 30 of Agenda 21 highlighted the role of business in achieving sustainable development. It is thus of necessity to provide a strategy to avert environmental pollution by corporations in developing countries who are still on a development trajectory. It is therefore essential to analyse the efforts that have been made by businesses to avoid or minimize pollution and initiate a strategy based on the findings of this present study for better environmental decisions by businesses, governments and communities who are the main stakeholders in corporate environmental protection.

1.3 The Country Ghana

1.3.1 Overview

Ghana, (capital, Accra) is a country located on the western coast of Africa, on the Greenwich meridian. It has a size of about 238,537 km^2 and population over 22 million (Ghana Statistical Service, 2004). It is bounded to the west by Ivory Coast, to the east by Togo, to the north by Burkina Faso and to the south by the Gulf of Guinea (figure 1.1).

The manufacturing industries studied in this research are located mostly in the coastal areas of Accra and Tema. This selection is justified due to the fact that the Accra-Tema region of Ghana has been major areas of industrial development in Ghana with significant number of people living there. Sixty to seventy percent of industries in Ghana are located in Accra and Tema which covers less than 1% of total area of Ghana (Adugu, 1998; Laing, 1994). Hence a case study using these areas is considered highly representative of the country Ghana.

Figure 1.1: Map of Ghana showing the Capital Accra, other key cities and neighboring countries (Source: CIA, 2007)

1.3.2 Ghana's Economy

The Ghanaian economy is largely agrarian with 60% of the labour force engaged in agriculture. The industrial contribution is 15% of labour force with a growth rate of 5.7% accounting for almost 25.3% of GDP (table 1.1; CIA, 2007). There is however room for continuous growth. The Ghana ministry of trade and Industry's vision is to increase industrial share of GDP from the current 15% to 37% of the labour force in the foreseeable future, with an average growth rate of 12% (CIA, 2007; www.ghanaweb.com). This implies there is potential for greater environmental impact for the expected future growth of industry. The need to assess the *status quo* regarding environmental performance as a basis to develop better structures for environmental governance cannot therefore be over emphasized.

The table below shows that although 60% of the labour force is involved in agriculture, contribution to GDP is 37.3%. However although only 15% of labour force is involved in industry, contribution to GDP is 25.3% implying that proportionately industry contributes more to GDP than agriculture. Hence the vision of an industry and service driven economy rather than an agrarian one, will increase GDP and at the same time bring pressure to bear on the environment which must be addressed and the current research makes such a contribution.

Table 1.1: Economic Statistics on Ghana

INDICATOR	**VALUE**
Population	22,409,572
Population Growth rate	2.07%
GDP (purchasing power parity)	$ 59.15 billion (2006 estimate)
GDP (official exchange rate)	$ 10.18 billion (2006 estimate)
GDP (real growth rate)	5.7% (2006)
GDP (per capita)	$ 2,600 (2006 estimate)
GDP (composition by sector)	
- agriculture	37.3%
- Industry	25.3%

- services	37.5% (2006 estimate)
Labour force	10.87 million (2006 estimate)
Labour force by occupation	
- agriculture	60%
- Industry	15%
-services	25%
Unemployment rate	20% (1997 estimate)

Source: The World Fact Book (CIA, 2007)

Worth noting too is the natural resource base and economic activities in Ghana. These are shown in table 1.2

Table 1.2: Natural resource base and corresponding Industry in Ghana

Natural Resource Base	**Industry**
Timber	Lumbering, small, commercial canoe/boat building
Gold	Mining
Diamonds	Mining
Bauxite	Aluminium smelting
Manganese	Mining
Silver	Mining
Salt	Mining
Limestone	Cement manufacturing
Petroleum (recently discovered)	Oil refinery
Hydropower	Electricity for domestic consumption and export
Rubber	Rubber extraction
Fish	Food processing

Source: The world Fact Book (CIA, 2007)

1.4 Problem statement

Environmental protection has been part of the corporate agenda of developed countries since the Stockholm Conference on the human environment in 1972. Generally, however, same cannot be said about developing countries. For example in Ghana, the accelerated industrial development in the post-independence era (after 1957) was characterized by a rapid creation and expansion of the manufacturing sector of the economy without due regard to minimize adverse impact on the environment. Although the spate of industrial development has decreased in recent years there are plans for vigorous upscale of the number of industries. This is consistent with the general trend observed in recent years that developing countries (example China as a country in transition) continue in their growth phase of industrialization. This implies a greater potential for increased resource use and consequently greater environmental impacts. Pollution and the threat of more pollution from Industry thus remain real. In Ghana, manufacturing industries were predominantly sited along water courses and coastal wetlands (EPA, 2004) and the discharge of untreated effluents into these water bodies has resulted in gross pollution of these media. For example, Accra and Tema which constitute the main industrial hubs of Ghana, and accounting for 60 to 70% of industries are located along the coast. The Korle lagoon and Odaw River in Accra and the Chemu lagoon in Tema are some of the extremely polluted water bodies in Ghana (see appendix 6B). Biological and physico-chemical studies carried out in these water bodies indicated that the discharge of untreated effluents with high pollution loads in excess of their assimilative capacities had destroyed their ability to support aquatic life. The effluents are characterized by high levels of acidity, alkalinity, suspended solids, conductivity, salinity, heavy metals, BOD and COD. The very high oxygen demand of these effluents has resulted in oxygen depletion in some parts of the receiving water bodies with recordings of zero dissolved oxygen values (EPA 2004).

The Chemu lagoon water pollution has been so serious that in 1998, the Government of Ghana commissioned Canada-based environmental consultants, Acres International to conduct feasibility studies into the ecological restoration of the lagoon. Although an immediate ecological restoration was recommended, nothing has been done 10 years after. Pollution of the Chemu lagoon continues unabated. Recently too, oil spillage into

the Chemu lagoon by the Tema Oil Refinery (TOR) has been reported in the news media. In a study establishing causal relationship between biodiversity changes and physico-chemical parameters of the Chemu lagoon, Adugu (1998) found out that there were significant losses in aquatic biodiversity of the Chemu lagoon due to marked deviations of the physico-chemical parameters measured from accepted standards. Low species diversity was observed at high pollution points and vice-versa. The contribution of industries to this environmental degradation was overwhelmingly supported (Adugu (1998). As Adugu (1998) observed, "Industrial waste on the other hand are discharged into open channels which empty into the Chemu lagoon and finally into the sea near the fishing harbour where the effects have become marked and objectionable even at the present low industrial output".

In a report which served as basis for Ghana's National Environmental Action Plan (NEAP), Laing (1994) documented environmental problems including air, water and land pollution. Laing (1994), in a review of the environmental challenges in Ghana further reveals location specific environmental problems affecting both land and water. Such location problems are commonly related to industrial and mining activities, or to human settlements (Laing, 1994). Untreated industrial and mining effluents are of localized importance and poses threat to some local communities in Ghana.

In addition to the problems espoused in the literature reviewed above which still persist today, an observation of the Ghanaian Industrial landscape reveals problems of land scarification, dust pollution associated with mine blasts and environmental degradation of small scale miners due to lack of alternate livelihoods in the Industrial mining regions (see appendix 7). Plastic waste and electronic waste scattered on land and in water bodies is a common scene observed (see appendix 5 and 6). According to one source (GNA, 2007) less than 2% of plastic waste is recycled in the country. These observations call into question the extent to which the regulatory and legal framework governing environmental protection addresses this problem. Further, it brings to the fore whether corporate bodies internalise their environmental externalities, in other words whether they take responsibility for the environmental consequences of their products. In addition the environmental problems associated with mining provoke the question of how corporate environmental responsiveness is practiced in Ghana and what the constraints to these are.

These questions would be explored in this present thesis. Thus to some extent this research is exploratory and seeks to further understand the problems observed and stated above and provides strategies to address these concerns. In this sense, it is problem solving oriented too.

1.5 Study aims and objectives

The overall aim of this dissertation is to investigate Corporate Environmental Governance practices in manufacturing enterprises and also mining companies in Ghana and provide strategies to address constraints associated with the findings. The broad objectives to be met in this study include the following:

- Understand and evaluate regulatory framework available for environmental governance in Ghana
- Evaluate corporate environmental performance within the regulatory framework as well as within voluntary policy frameworks initiated by Industry
- Investigate the degree to which companies internalise their environmental externalities
- Document the common Corporate Social and Environmental Responsibility (CSR) practices in the mining regions and analyse the constraints to full environmental responsiveness
- Propose strategies and recommendations to address the constraints to corporate environmental performance in Ghana

1.6 Thesis focus: corporate environmental governance and performance

1.6.1 Corporate environmental governance

Several definitions of corporate environmental governance have been given in the literature. Levy and Newell (2005, p. 2) describe environmental governance this way:

"Environmental governance signifies the broad range of political, economic, and social structures and processes that shape and constrain actors' behavior towards the environment. Environmental governance thus refers to the multiple channels through which human impacts on the natural environment are ordered and regulated. It implies rule creation, institution building, and monitoring and enforcement. But it also implies a soft infrastructure of norms, expectations and social undertakings of acceptable behavior

towards the environment in the processes that engage the participation of a broad range of stakeholders".

White and Kiernan (2004) provided a more succinct definition in relation to corporate environmental governance thus: "the term environmental governance is defined as encompassing the full range of best practice approaches to the management by companies of their environmental impacts, risks, performance and opportunities". Corporate environmental governance thus describes how a corporation manages its corporate environment within a defined framework of *environmental impacts*, *risks* (threats), *performance* and *opportunities.* This definition suggests analysis of corporate environmental governance should take into considerations all the dimensions mentioned including opportunities which describes environmental and social related opportunities made available to communities for their advancement where firms operate. Hence corporate environmental governance is responsible corporate leadership reflected in good ethical practices and going beyond the letter of the law-in the spirit of the law.

Illinitch et al., (1998; p.388) on the other hand break corporate environmental governance criteria into processes and outcomes that are both internal and external to the company. The general categories include internal organizational processes, internal compliance with laws and regulations, external stakeholder relationships and external environmental impacts. Indicators for these categories include adoption of EMS, fines and penalties, publication of environmental reports and data (disclosure) and public access to emissions data.

Table 1.3: Processes and outcomes for corporate environmental governance

	Internal	External
Process	Organizational systems	Stakeholder relations
Outcome	Regulatory compliance	Environmental Impacts

Source: Illinitch et al., (1998)

White and Kiernan (2004) describe the key business considerations of corporate environmental governance along similar lines as Illinitch et al., (1998). The following key business considerations are essential for analysis of corporate environmental governance (White and Kiernan, 2004):

- Environmental values (expressed through visions, mission, principles)
- Environmental policy (expressed through strategy, objectives and targets)
- Environmental oversight (expressed through assigning responsibility, direction, training and communication)
- Environmental processes (management systems, initiatives, internal control, monitoring and review, stakeholder dialogue, reporting and verification)
- Environmental performance (use of Key Performance Indicators, benchmarking, eco-efficiency, reputation, compliance, liabilities, business development)

The description of Levy and Newell (2005) and also Illinitsch (1998) as well as White and Kiernan's (2004) definitions can be integrated more aptly as both institutional and procedural mechanisms through which firms reduce their risk exposure and seeks improved performance through engagement with their stakeholders. Hence Corporate Environmental Governance aptly describes the values, norms, processes and institutions through which companies attempt to reduce their risk exposure and through which they demonstrate to stakeholders that they operate in a safe and environmentally sustainable manner.

Corporate environmental governance is rooted in concerns on environmental issues within the firm. In publicly owned corporations, most of these concerns are expressed from the board of directors (Sexton et al., 1999). In private enterprises which are usually owner managed (Colley et al., 2003) environmental concerns are usually expressed by the owner's direct involvement.

From the foregoing, a flow diagram can be used to summarize the main framework for corporate environmental governance as shown in figure 1.2. In this thesis 22 indicators have been developed based on the frame works of Illinitsch (1998), and White and Kiernan (2004) to evaluate corporate environmental performance of manufacturing industries in Ghana. An interview guide was also used as basis to evaluate corporate social and environmental performance by companies in the mining industry. Thus the key environmental governance factors assessed in this thesis include strategy, objectives, targets, EMS, environmental training, disclosure and verification as well as opportunities mining firms create for communities through corporate social responsibility.

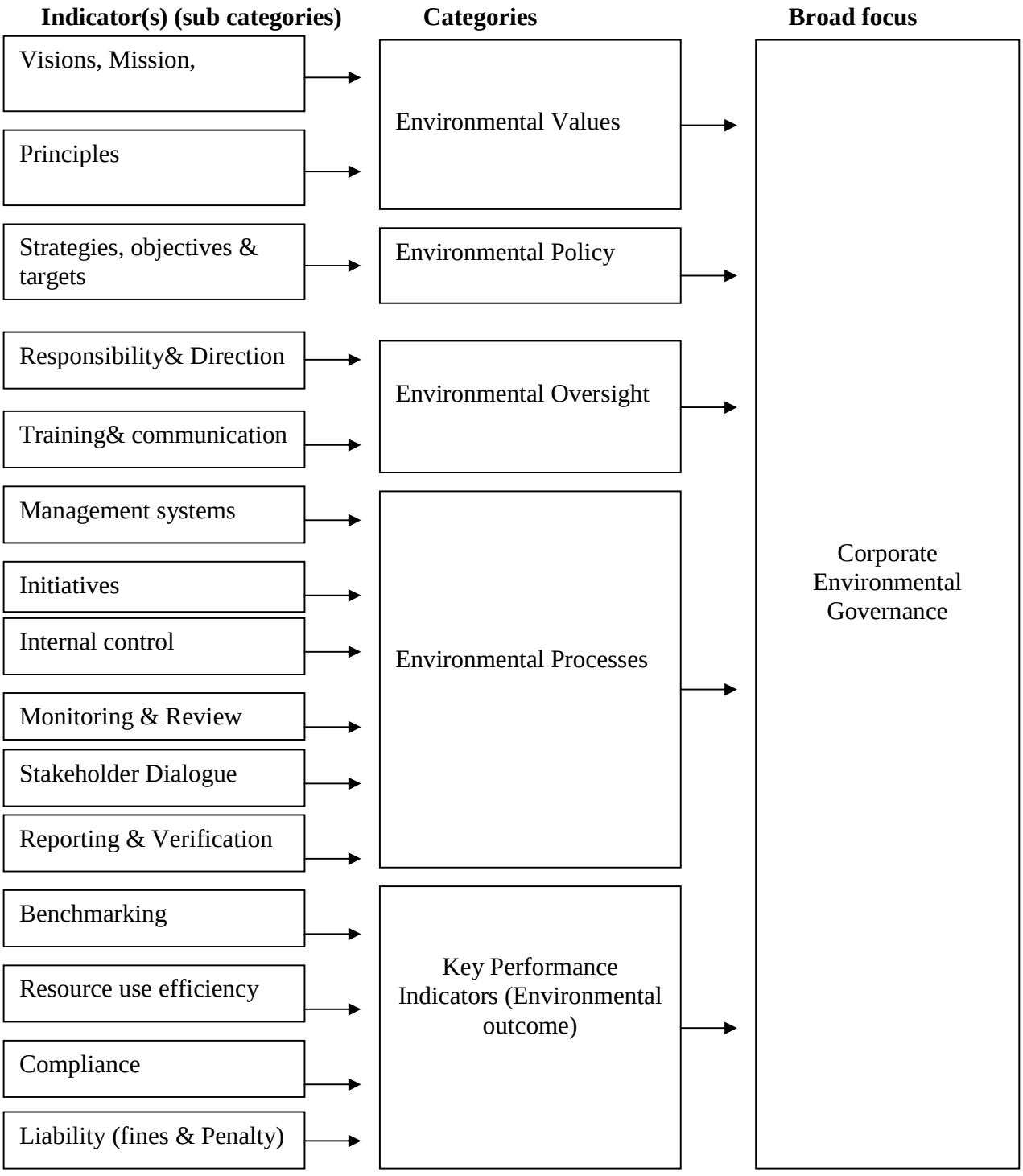

Figure 1.2: Flow chart describing generic components of corporate environmental governance

1.6.2 Corporate environmental performance

The term "environmental performance" has been used variedly and sometimes vaguely in the literature. While some authors use the term in a context of implementing environmental initiatives set by a company (Rowe and Enticott, 1998; Barnerjee 2002) others have used it to refer to meeting set standards within a national body's environmental framework (ISO, 1996). Hence, for example, the International Standardisation Organisation's Environmental Management System (ISO 14001) has been described as a *performance* tool. Other authors have however challenged this designation (e.g. Roht-Arriaza, 1995) arguing that it is a mere *conformance* tool. Such authors point out that ISO 14001's *performance* measure is only as good as the legislative framework/standard on which it is based. This is because environmental management under ISO 14001 is based on the national framework of the country in which it operates and hence "performance" could not be compared across countries that may have different frameworks for environmental management. Those subscribing to this school of thought view *performance* as measurable based only on a universal standard. Thus Roht-Arriaza (1995), argues that environmental performance cannot be "universalised" unless the standards upon which it is based are similar or comparable. However it is this author's contention that while it is true that comparison of performance based on different frameworks cannot be made, describing performance in terms of country or even Industry-level regulatory framework rather than an internationally recognised framework still allows for intra comparison of different aspects of a nation's or industry's environmental endeavours. Indeed, the inspection of the literature yielded no formal definition of *performance* making the controversy regarding the meaning of "performance" flawed. The meaning of the term "performance" has been assumed in the literature as obvious without defining the term. In the face of such controversy regarding what *corporate environmental performanc*e is all about, there is a need for a formal definition. As Ghauri and Grönhaug (2005) points out, a precise definition of a construct is needed before it can be measured. Based on literature inspection and analysis of the sense in which it has been used (see for example, Rowe and Enticott, 1998), I propose this working definition:

"Corporate environmental performance is defined as the extent of implementing set(s) of environmental initiatives and supporting management systems by firms to reduce the environmental impact of their activities"

These "sets of initiatives and supporting management systems" in the definition are evaluated by the domain upon which performance is based (Barnerjee, 2002) and in the context of this study, it is corporate environmental governance.

In being consistent with the definition provided, the author characterises corporate environmental performance as E_p, which from the definition is reflected in the set of environmental initiatives and supporting management systems implemented by the firm, E_i. Thus $E_p = E_i$. A firm's contribution to overall environmental quality E_Q will be dependent on the set of environmental initiatives and supporting management systems implemented by the firm E_i as well as the negative environmental impacts of the firm's activities E_m. Thus $E_Q = E_i + (- E_m)$. This can be expressed as $E_Q = E_i - E_m = E_p - E_m$. Thus if the absolute value of E_m is greater than E_p, a firm's contribution to environmental quality will be negative although its performance may be high and positive. Thus as Barnerjee (2002) points out E_p is not the same as a firm's overall contribution to environmental quality or "greenness" E_Q. Hence environmental performance as used in the literature and as defined here only reflects the extent to which companies have integrated environmental concerns into environmental governance processes. Thus industry level environmental performance determined in this present study cannot be used to draw conclusions about the "greenness" of an industry. This is because "greenness" or a company's overall contribution to environmental quality is a function of both E_p and E_m. This present study however evaluates only E_p.

As Barnerjee (2002) points out, environmental performance measure is a good self-assessment tool a company can use to compare different aspects of its environmental initiatives as basis for continuous improvement. It must be emphasised that firms in high-environmental impact industries like chemical and industrial manufacturing show a greater environmental strategy focus and initiative (Barnerjee, 2002). However their "greenness" or overall contribution to environmental quality is expressed as their environmental initiative (performance) less the environmental cost, the more reason why

it would be wrong to designate an industry as “green” based only on its implementation of environmental initiatives and supporting systems without considering the negative environmental impacts of the firm’s activities.

1.7 Thesis outline

This thesis is presented in 10 chapters. The current chapter (chapter 1) provides a general introduction and scope of the study. It also reviews aspects of environmental challenges facing Ghana today. It further provides scope and context within which the research was conducted. Chapter 2 looks at the conceptual foundation of the thesis which provides scope and basis for the methodology used. Chapter 3 elaborates on the methodology employed in the study. Chapter 4 carries out an analysis of environmental policy instruments and relates them to environmental management within the Ghanaian context. The fifth chapter is the subject of a SWOT analysis of the legal framework governing environmental protection in Ghana. Chapters 6 and 7 focus on empirical studies carried out by the author on environmental governance practices by Ghanaian manufacturing companies. While chapter 6 reports a survey of corporate environmental management practices in Ghana, Chapter 7 deals with an empirical study of environmental performance in the manufacturing sector. Chapter 8 documents current practices of corporate social and environmental responsibility (CSR) by mining companies in Ghana. It also investigates the triggers for corporate “philanthropy” in the mining sector of Ghana and provides strategies for mining companies, communities and government to help improve CSR by mining companies. In chapter 9, an overview of constraints to environmental governance is given and ways to address such constraints by corporate bodies, governments and local communities where such companies operate are expounded on. Chapter 10 provides a conclusive discussion and focuses on interventions by way of recommendations for better environmental decision-making by Ghanaian Businesses.

2 Conceptual and legal frames of reference

'Not all theory fits the practice, but the practice in turn needs to be sustained by theoretical concepts'- Jeffrey Sachs

2.1 Introduction

A good concept is essential if a study is to be put in the right perspective. Even though concepts have the limitation of being abstract in nature (McGuire, 1989), they are more explicit, and more formally organised than general everyday knowledge, hence their ability to make complex processes simple and systematic. Concepts therefore provide philosophical, legal and theoretical foundations for studies to be put into perspective. They serve as guiding principles and provide a framework and scope within which a study is conducted. In this chapter the conceptual frame of reference for this thesis is discussed. Various concepts that relate to business sustainability and corporate environmental governance are discussed and their link to the present study established. Apart from providing a framework for the discussion section, the theoretical concepts espoused offer suggestions and opportunities for government, companies and communities to expand current efforts at environmental protection.

2.2 Paradigms on corporate mandate

As mentioned earlier, this thesis is focussed on corporate environmental governance which among other things involves responsible corporate environmental leadership beyond legislative requirements. An important question arising is the need to define the mandate of business. In other words is it the responsibility of business to be ethical and to promote good environmental governance? While some scholars are of the view that the role of business is to make profits for its shareholders and hence has no responsibility towards environmental and other social issues beyond what is required by law (e.g. Friedman, 1970) others (e.g. Mackey, 2005) are of the view that companies owe it as a duty to create value for all their constituents (stakeholders). The former view has been designated the "profit maximisation paradigm" and the latter view as "stakeholder theory". A case for the stakeholder centred mandate of business is necessary to justify corporate environmental governance including corporate social responsibility as part of responsible business practice. Hence in this section, the argumentation for the stakeholder centred mandate of business is provided.

Two contrasting paradigms for business existence (mandate) have been discussed in the literature: (1) The classical shareholder wealth maximisation paradigm and (2) a contemporary stakeholder value centred paradigm. Friedman (2005) re-echoed his 1970 assertion that the social responsibility of business is to increase its profits. Friedman's argument suggests the firm should be solely profit-making centred in its responsibility. This view implies a sole emphasis on profit making which means other stakeholder views are not necessarily embraced into corporate decision-making process. Post et al., (2002) however hold that stakeholder views continue changing by dynamic processes hence business values should match all stakeholder values (Post et al., 2002). Post et al's argument therefore was on placing emphasis on benefits to *stakeholders* rather than to *shareholders* alone. Thus as De George, (1999) put it, business action should hence 'produce the greatest amount of good for the greatest number of people affected by an action'. This view of business mandate may be seen by some as generally binding utilitarian ethical reasoning. This may be rightly so. However in expanding the argument, Mackey (2005) pointed out that being socially responsible and ethical is not inconsistent with profit making. As Mackey (2005) succinctly puts it, being socially responsible and ethical seems to be the most attractive business philosophy with superior marketing power that leads to creating value for all stakeholders and creating organisational wealth. Mackey (2005) further argues that profit making should be the means to an end of creating value for all stakeholders including employees, customers, suppliers, investors, and communities where the companies operate. Indeed, Mackey (2005) further contends that each of the groups of stakeholders will define the purpose of the business in terms of its own needs and desires, and each perspective is valid and legitimate.

Post et al., (2002) eloquently asserted that the central proposition of the stakeholder view is that organisational wealth is created (or destroyed) through a corporation's interaction and communication with its stakeholders rather than its shareholders. Further, Post et al., (2002) argue that, "the legitimacy of the corporation as an institution, its license to 'operate' within society, depends not only in its success in wealth creation but also on its ability to meet expectations of diverse constituents who contribute to its existence and success. These constituencies and interests are the corporation's stakeholders- resource providers, customers, supplies, alliance partners, social and political actors as well as

what these stakeholders care about- the environment. Consequently the corporation must be seen as an institution engaged in mobilising resources to create wealth and benefits for all its stakeholders. Effective stakeholder management develops and utilizes relationships between a corporation and its stakeholders for mutual benefit, thereby accomplishing the fundamental purpose of wealth creation" (Post et al., 2002). From the foregone discussions, it is clear that each enlightened business must find the proper balance between all its constituencies including employees, customers, suppliers, investors, government and communities where the companies operate as well as the *environment and future actors* (emphasis mine). Further, the stakeholder model of business mandate seem to be a more robust business model than the profit-maximisation model that it competes against, because it encourages and tap into more powerful motivations than self interest alone (Mackey, 2005). The need therefore for a broad based consideration of the moral good beyond meeting legislative requirement is needed in corporate environmental governance and corporate social responsibility. The next section expands on some of the ethical and legal basis that justifies the necessity for voluntary corporate environmental action.

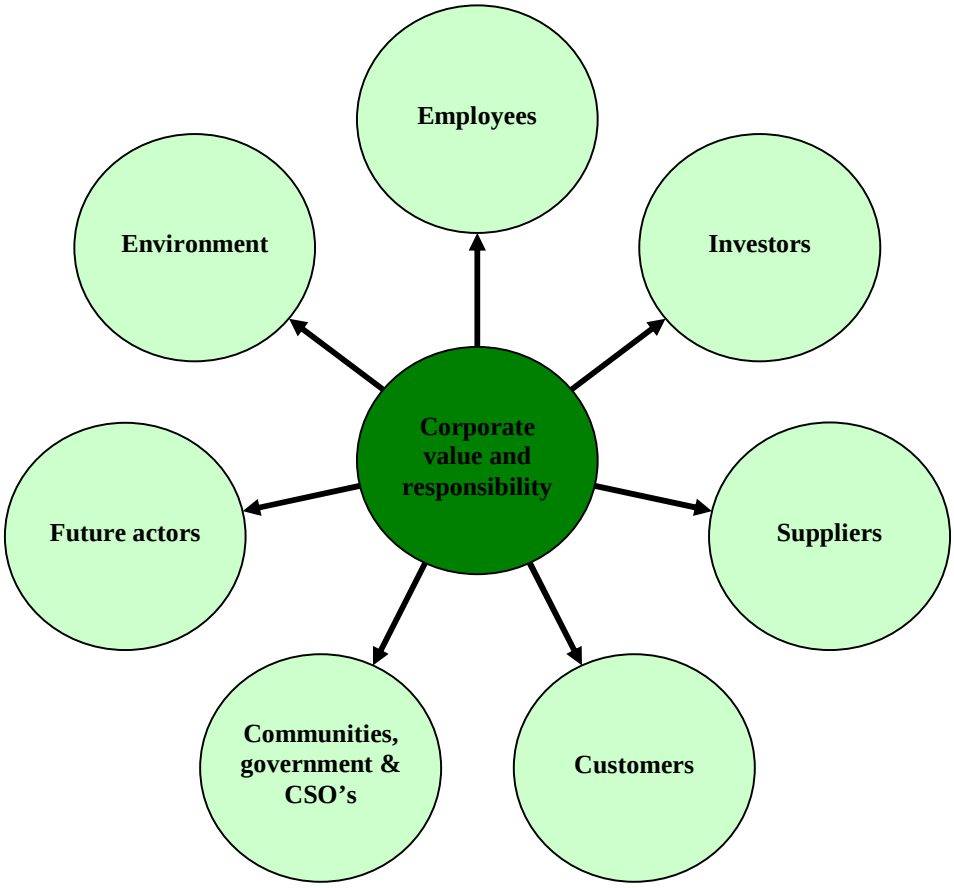

Figure 2.1: A framework of stakeholder-centred worldview for business sustainability

2.3 Legal principles and concepts as basis for environmental management

As discussed in Chapter 1, legal principles stem from International environmental conventions and some provide a framework for the development and convergence of national and sub-national environmental laws (Hunter et al., 2007) which provides a basis for environmental protection at the national level. As Hunter et al., (2007) put it, 'even where principles or concepts have not yet become customary law, they can be used to put political pressure on states to apply these principles in domestic law.' Here, some of these concepts are reviewed and their application or potential application to corporate environmental policy and protection in Ghanaian Industries is established in later chapters of the thesis.

2.3.1 The principle of intergenerational equity

An important principle why corporations need to be socially and environmentally responsible is the principle of intergenerational equity. This principle is rooted in fairness across generations. In other words it stresses the importance of the "wise use" concept of resource utilisation from generation to generation and serves as both legal and ethical basis for good corporate governance. The principle of intergenerational equity was originally espoused in the Brundtland commission's land mark document, *Our Common Future*. As shown in the framework on page 28, the principles governing business sustainability includes, but not limited to the principle of intergenerational equity and thus the stakeholder centred model of business mandate should include the environment and the role of future actors as well (figure 2.1). It is also worth noting that the definition of Sustainable development by the Brundtland commission in *Our Common Future* refers to meeting the needs of present generations without sacrificing the needs of future generations. Thus leaving a cleaner air for future generations, using raw materials judiciously, avoiding wastes and recycling for example, are based partly or wholly on the principle of intergenerational equity and these are achievable only when future actors are factored into the stakeholder value centred model as shown above (figure 2.1).

2.3.2 The principle of prevention

This principle generally holds that protection of the environment is best achieved by preventing environmental harm in the first place rather than relying on remedies or compensation for such harm after it has occurred. The principle of prevention has its roots in principle 6 of the Stockholm Declaration thus:

"The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems."

The prevention principle at the national level in most countries is implemented through pollution prevention or waste minimisation policies, improved environmental management including periodic audits, EIA, and policies reflecting life-cycle analyses and extended product responsibility (Hunter et al., 2007). In the EU for example, Extended Producer Responsibility (EPR) is a response tool to both the principle of

prevention (Stockholm principle 6) and Rio principle 8 in addressing the problem of unsustainable consumption practices in increasing environmental impacts. EPR expands the responsibility of businesses to reduce their products' environmental impacts throughout the product's life cycle. In the European Union, for example, producers are effectively required to take responsibility for their product packaging upon disposal. Today, such laws are being designed around the world with significant consequences for product design and consumption patterns (Hunter et al., 2007). It is important to highlight such concepts. This is because the present thesis also assesses how Ghanaian regulators and businesses are performing in this direction among others. A lot of opportunities abound in embracing this concept in addressing a peculiar problem, the plastic waste problem in Ghana for example (appendix 6C).

2.3.3 The precautionary principle

The precautionary principle reflects the recognition that scientific certainty often comes too late to design effective legal and policy responses for preventing many potential environmental threats. Indeed since most environmental issues involve complex analysis of scientific, technical and economic factors the law is unable to address these uncertainties. The precautionary principle therefore addresses how environmental decisions are made in the face of scientific uncertainty (Hunter et al., 2007). Both the principle of prevention and the precautionary principles are *cautionary or anticipatory* rather than *reactionary* which is addressed through the law (regulations). As argued by Hunter et al., (2007) the precautionary principle can be viewed as the application of the principle of prevention where the scientific understanding of a specific environmental threat is not complete. The most widely accepted elaboration of the precautionary principle is founded on principle 15 of the Rio Declaration on Environment and Development thus:

"In order to protect the environment, the precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

The precautionary principle thus provides a framework for governments to set preventative policies where existing science is incomplete or where no consensus exists

regarding a particular threat (Hunter et al., 2007). In a sense this principle is linked to Environmental Impact Assessment (EIA) requirements which mandate project proponents to provide mitigation plans for potential impacts of proposed project. In Ghana for example, Act 490 discussed in Chapter 5 makes provisions requiring EIA. The precautionary principle is also closely associated with ethical and moral principles as discussed below.

2.3.4 Polluter-pays principle

The polluter-pays principle is the requirement that costs of pollution should be borne by the person responsible for causing the pollution and consequential costs. Principle 16 of the Rio Declaration reflects this principle in this way:

"National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the costs of pollution, with due regard to public interests and without distorting international trade and investment".

Worth noting is the fact that the principle has not been accepted generally. However it has some positive aspects and relates closely to the rules governing civil and state liability for environmental damage, and the permissibility of state subsidies (Hunter et al., 2007). It must be further emphasised that Agenda 21 also endorses the polluter pays principle at least implicitly in Paragraph 30.3 by extolling governments to use 'free market mechanisms in which the prices of goods and services should increasingly reflect the environmental costs (paragraph 30.3) and by recommending that commodity prices should reflect environmental costs (paragraph 2.14). Implementation mechanisms for the principle include user fees or taxes, elimination of subsidies, environmental pollution standards and greener accounting systems both at the national level and within the private sector (Hunter et al., 2007).

2.4 Ethical and moral principles

Another important reason why the environment should be of concern to Industry relates to the moral and ethical dilemmas facing society. Rossouw (2002; p.3, in Goosen, 2004) defines ethics this way: "Ethics concerns itself with what is good or right in human interaction". Ethical and moral concepts are grounded in deep ecological thinking as well

as the beliefs and values of societies over the years. For example, a traditional/indigenous form of the principle of *trusteeship* is reflected in an *Ijaw*[2] proverb this way:

"We did not inherit the world from our fathers. We borrowed it for our children".

This reflects the idea of sustaining the resources of the earth for future generations also. It is grounded in deep cultural values and respect for the rights of future societies to meet their own needs. This concept is very much related to the principle of trusteeship of earth resources, the first principle of modern environmental law (Hunter et al., 2007) which argument is that ownership of earth resources is only to be held in trust by existing human societies for future generations. It therefore makes it incumbent on current generations to use it wisely, manage it and take custody of it for future generations. Related to this principle is the respect-for-nature principle which postulates that the earth and its resources have intrinsic rights to exist without being exploited (Miller, 1990). This view further holds that the existence of the earth and its resources should be independent of the uses and benefits to be derived from it by man. Arguing from this philosophical perspective therefore, the environment is viewed metaphorically as a stakeholder in corporate sustainability and hence is factored in, in the stakeholder value centred model of business mandate (figure 2.1 above). The role of humans therefore is to understand and work with the rest of nature, not conquer it (principle of cooperation; Miller, 1990). Earlier, Goodpaster and Mathews (1982) made a succinct case for the environment and other social ends by arguing that corporations collectively should possess a moral conscience towards them. Since laws are chiefly reactionary, corporations should be seen to be proactive in reducing pollution burden on the environment and using resources sustainably even if there are no laws enforcing compliance (Goodpaster and Mathews, 1982). This current study brings on board the extent to which these concepts are reflected (through voluntary actions) in national environmental laws and corporate environmental actions of Ghanaian manufacturing and mining Industries investigated in this study. Indeed Vazquez and Liston-Heyes (2008) show with an empirical study that corporate discourse (in the form of mission statements and corporate philosophies) affects the corporate mindset and correlates positively with corporate environmental performance.

[2] The Ijaw people are a tribe living in the modern day country of Nigeria

Hence assessing the degree to which companies enlist corporate environmental principles as well as legal and ethical concepts espoused in this chapter provides proxy indication of environmental performance of the firm.

All the concepts discussed above form part of the foundational basis for corporate environmental governance and provides legal, theoretical and philosophical basis for corporate environmental governance which is analysed in this dissertation.

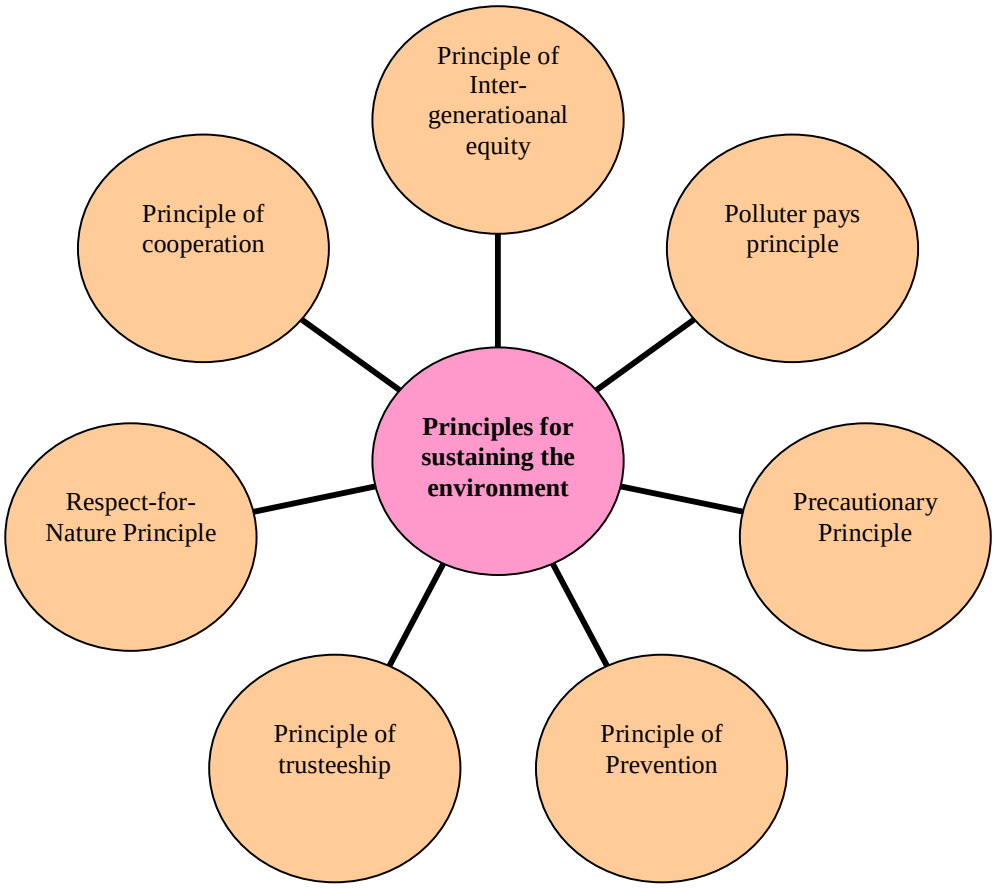

Figure 2.2: Principles for corporate sustainability

2.5 Traditional rules and cultural belief systems

In many African countries traditional rules and cultural belief systems reign. Respect for, and adherence to such traditional rules and cultural belief systems are expected from companies that operate in the locality where such beliefs permeate. These traditional rules expressed sometimes as "by-laws" have been transmitted orally from generations to generations and enforced by *taboos* and sanctions through traditional authorities. Traditional rules/cultural belief systems may seek to for example protect a community's drinking water resource, a river or a lagoon and its resources. However, very often the basis for protection is not founded on accurate science but on superstition. For example a river or its surrounding forest lands may be protected on the basis that the spirit of the river god resided in the forest (Ntiamoa-Baidu, 1995). Such beliefs are enforced through taboos and such taboos would include: prohibition of cultivation of forest lands in the river banks, prohibition of use of fisheries resources within the river and restrictions on access to the river on certain days (Ntiamoa-Baidu, 1991) as well as restriction of discharge of even treated effluent into the rivers and lagoon. These taboos thus serve to prevent the defilement of the river. Thus although protection of the forests along river banks was based on religious and cultural beliefs, it served as river corridor management. Increasingly it is being argued that aspects of such traditional concepts should be formally integrated into formal legal systems (Ntiamoa-Baidu, 1991).

In this study too, the extent to which the principles and the traditional belief concepts espoused in this chapter are transposed into national laws and also the degree to which compliance with laws based on the corporate sustainability principles and traditional rules form part of the corporate governance agenda is also analysed.

2.6 Summary

This chapter has among other things discussed concepts that provide good foundational base for the study. Further, from the analysis of the literature, a case has been made for the new industrial philosophy- the stakeholder value centred model for business (stakeholder theory). In addition, legal and ethical concepts that form foundational pillars for modern environmental management has been expatiated on.

3 Methodology

3.1 Introduction

The methodology of the study is presented in this chapter. The term methodology refers to the structured sets of procedures and instruments by which research is conducted. In other words it is a framework within which facts are registered, documented and interpreted in a research. The two basic methodological approaches to which different studies might naturally lend themselves are the qualitative and the quantitative methods. According to Ghauri and Grönhaug (2005) qualitative research produces findings not arrived at by means of statistical procedure or other means of quantification. Qualitative research is therefore descriptive and analytical. Further, qualitative research may employ a normative approach- an approach that values and makes use of the thoughts, feelings and reactions of the researcher (Priest, 1996). The reverse, that is, research in which statistical procedures feature prominently constitute quantitative research. In recent years however a combination of both qualitative and quantitative methods has been in use. This combination of methods, called *triangulation* has been justified and defended by scholars. Ghauri and Grönhaug (2005) shows that different methods should not be in competition with each other, but rather the method chosen should be dictated by the purpose of the study being conducted. Further, Ghauri and Grönhaug (2005) stresses that more than one method can be used even in the same research in which case they serve to complement each other. In this study, a combination of methods is used- i.e. both qualitative and quantitative since the research questions to be answered demands this approach. However the qualitative method features more prominently. It is therefore important that methodologies adopted in research be defined by the nature of the study and not only by a generally established orthodoxy. Supporting this view Jensen (1991) has said that "there appears to be an emerging consensus that a great many central research issues cannot be adequately examined through the kinds of questions that are posed by hypothetico-deductive methods and addressed with quantifiable answers".

3.2 Sources and types of data collected

Data collection during the research is based on multiple sources. Primary sources of data included data collected by the researcher while secondary sources included data from publicly available documents, textbooks, journal articles, company websites, consultancy

reports, maps and government reports. Hence for the secondary data, document analysis was utilised as a qualitative investigative tool.

3.3 Survey

One of the central themes of this dissertation is to assess corporate environmental performance of manufacturing industries in Ghana within a framework of environmental governance. The study has two basic components- an empirical study and a descriptive normative study (theoretical and critically analytic reviews). The empirical study is based on a survey conducted on environmental performance initiatives of Ghanaian firms. Data collected on this part is based chiefly on questionnaires and interview surveys.

Generally questionnaires are paper and pencil based instruments that the respondent completes. Interviews are completed by the interviewer based on what the respondent says (Trochim, 2003). Three types of interviews are distinguished in the literature- structured, semi-structured and unstructured interviews. Structured and semi-structured interviews make use of questionnaire while unstructured interviews take the form of personal conversation (Ghauri and Grönhaug, 2005), although an interview guide might be used to elicit responses from respondents. In this research unstructured interviews with an interview guide and questionnaire survey were the main research instruments employed for primary sources of data.

3.4 Structure of questionnaire and interview guides

The main research instrument used to elicit responses on corporate environmental performance by the industries investigated in this study was a four part questionnaire. The first part of the questionnaire focussed on general information on the companies. Information was sought on company location, company size, total number of workers, company type as well as information on position occupied by the questionnaire respondents (detail study in chapters 6 and 7). The second part of the questionnaire focussed on legal and governmental regulatory requirements concerning environmental protection. The third part looked at environmental management (pollution control) and resource conservation initiates by these companies. The final part of the questionnaire was dedicated to corporate environmental planning and policy issues (see appendix 1-3 for questionnaire and interview guides). The questionnaire format was mixed- open

ended questions, closed ended (multiple choices) and 5 points Likert scale type questions. Figure 3.1 shows a design of the questionnaire structure.

In addition to these 4 parts questionnaire, 2 separate interview guides were prepared to serve as guides for unstructured interviews (appendix 2 and 3) with some targeted respondents. These interview guides focussed on (1) monitoring (verification) and enforcement of environmental regulations by EPA the lead governmental environmental agency, as well as (2) the degree to which CSR forms part of corporate governance by mining companies. The choice of manufacturing industries and mining companies is because their activities are perceived to cause significant environmental impacts (EPA, 2004) and hence they were considered the ones most pressing to be investigated. The unstructured interviews which took the form of personal conversations were with two senior Programs officers of EPA, and a final interview with 2 corporate social and community responsibility officers of the mining firms. The above were primary sources of data. Secondary sources as mentioned earlier, came from governmental reports, journal articles etc. Chapters 1-5 and 8-10 have been based more on secondary data while chapters 6 and 7 made more use of primary data.

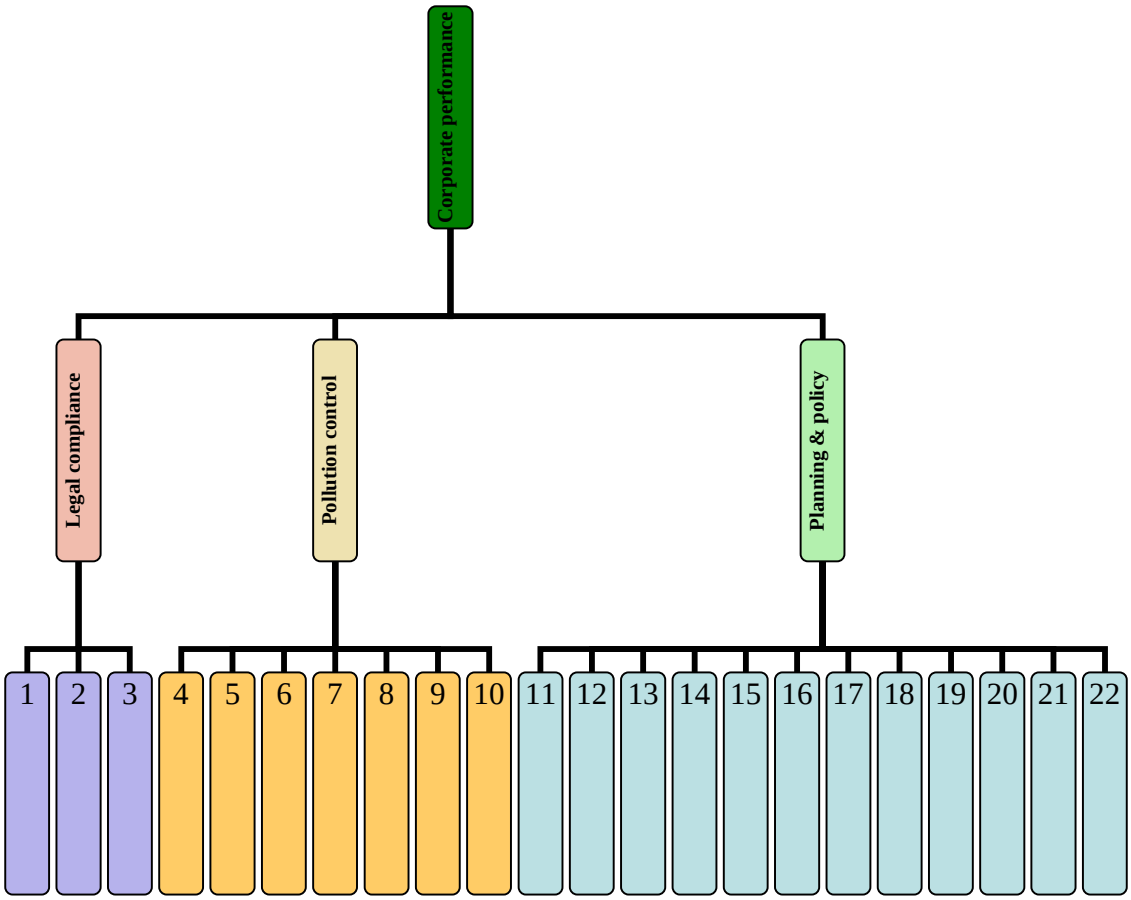

Figure 3.1: Design for evaluating environmental performance in 3 key areas by manufacturing enterprises in Ghana

Legend (structure of questionnaire designed to elicit response from 3 key areas thus):

1: Complied with all government (EPA) environmental regulation requirements
2: Complies with by-laws, traditional rules and other regulations in relation to environment
3: Non-compliance penalty serves as disincentive to environmental pollution
4: Promptly replaces obsolete machinery with state of the art (newer) technology
5: Separates waste at source according to type
6: monitors emissions/effluent from industrial activities
7: ensures emissions/effluent meet EPA guideline standards
8: recycles/re-uses process water
9: ensures energy (electricity etc) is adequately conserved and efficiency used
10: Makes use of alternate sources of energy
11: sets environmental objectives and targets
12: Identifies corporate significant environmental aspect of company's work
13: Addresses all environmental management ambitions
14: complies with all legal and other regulatory requirements
15: Adheres to company's code of conduct and environmental policy
16: controls operation/process of production work that has environmental implications
17: ensures communication of environmental work (training, reporting and disclosure)
18: ensures human capacity regarding environmental protection is excellent
19: ensures existing capacity (machinery and technology) is excellent
20: Acting swiftly to fix broken down equipments in the past

21: Acting swiftly in response to environmental incidents/accidents in the past
22: ensures high safety standards through the use of Personal Protective Equipment (PPE)

3.5 Choice of survey areas and subjects

As shown in the map (figure 3.2, 3.3), the survey areas are based in Accra and Tema areas of Ghana while investigation into corporate social practices by mining companies is focussed on the middle belt of Ghana (map shown in chapter 8). The motivation for this is that the Accra and Tema areas have well over 70% of the Industrial concentration of Ghana (Laing, 1994, Adugu, 1998) and also the middle belt of Ghana is the main hub for mining activities in Ghana. Hence focussing on these areas, although relatively small in terms of geographic area, generates data more representative of the country rather than focussing on a wider geographical area with less concentration of industry. The target subjects for this research are experts in environmental governance issues. Hence the questionnaire survey targeted environmental managers of companies. In the absence of such persons or where there was no environmental manager the questionnaire was delivered to the General/Human Resource Manager or a person so designated by the General/Human Resources Manager. As mentioned earlier, unstructured interviews were also conducted with subjects who were experts in other areas of interest to this study (see interview guide in appendices 2 and 3). Such subjects included EPA officials and 2 experts in mining companies' social and environmental engagement with local communities.

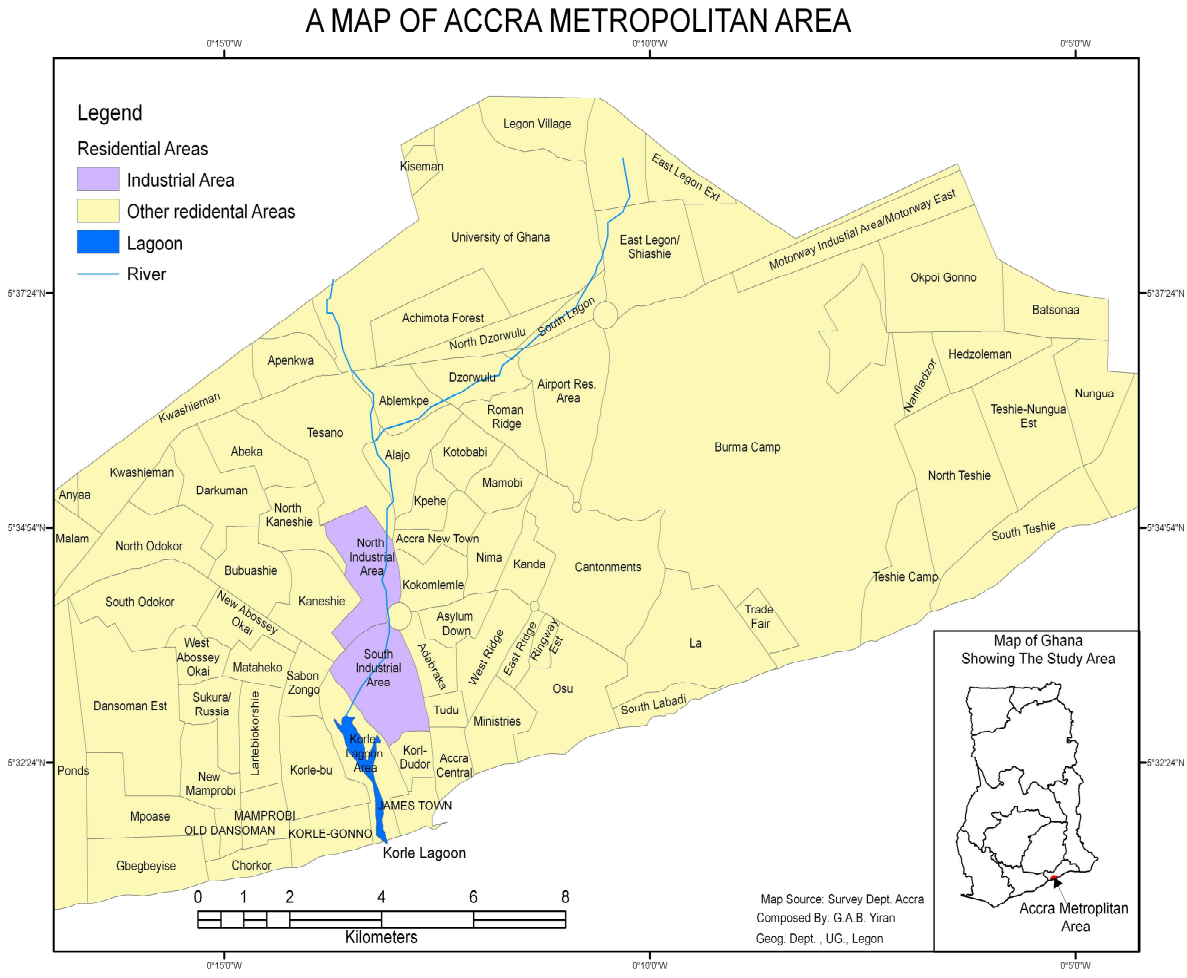

Figure 3.2: Map showing Industrial concentration in Accra

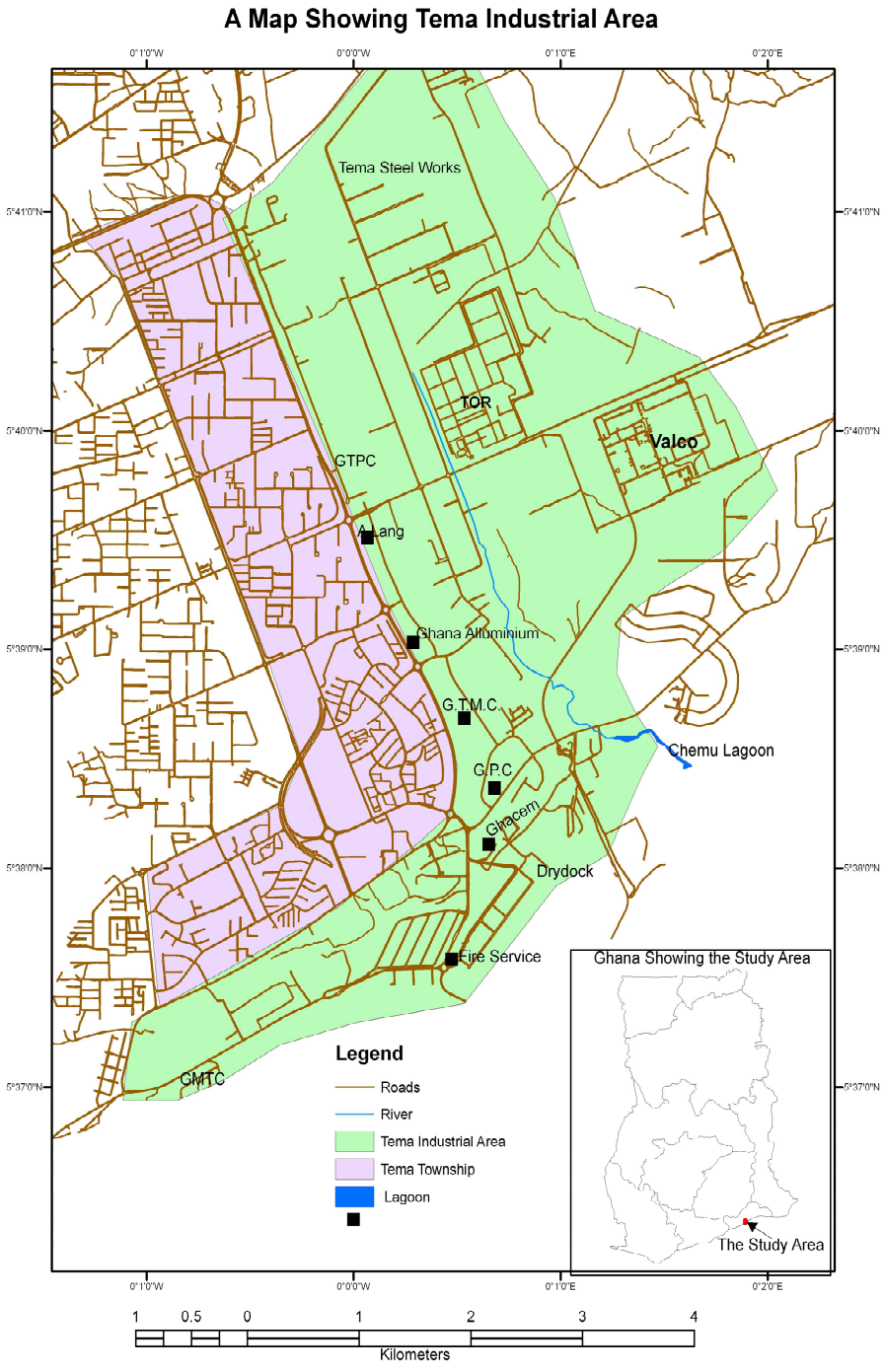

Figure 3.3: Map of Tema Industrial area showing the Chemu lagoon

3.6 Sampling procedure

A pilot survey was conducted to assess the respondents' level of understanding of the questions and also to evaluate the relevance of the questions asked. Respondents were also asked to comment on any difficulties experienced in completing the pilot questionnaires. Out of 10 questionnaires admitted, 6 were returned and those not returning the questionnaires were all mining companies. Due to this the decision was taking to focus on another aspect of corporate governance- corporate social and environmental responsibility utilising both primary and secondary data in this analysis (chapter 8) for the mining companies. The pilot questionnaire was found relatively easy to answer. Respondents' only complaint was that they found the questionnaire a little too long to answer. Based on this the questionnaire was revised to make it relatively less bulky for respondents to fill. They were then administered. The targeted subjects or their representatives were located in the main industrial hub of Accra-Tema area in their offices. The questionnaires were personally administered by the researcher or his assistant between September 2007 and March 2008. Including the pilot survey, in all, 200 survey questionnaires were administered. Out of this number, 126 were returned. Six of the questionnaires were rejected either due to inconsistencies in the responses or incomplete responses or both. Thus the valid return rate was 120 questionnaires or 60% return rate. Random sampling technique was used to reach manufacturing companies within the Accra and Tema areas. However since it was also the author's desire to obtain sample responses from Small to Medium size Enterprises (SMEs) and large companies in the same proportion, (because these industries are distributed in the same proportion in the population; Laing, 1994), purposive sampling was used to achieve this later objective. This was done by conveniently targeting some large industries to help obtain same proportion of large enterprises and SMEs when it became clear this was not going to be achieved without purposive sampling. The breakdown of the valid return rates are as follows: 36 medium companies, 24 small companies and 60 large companies.

Also, 4 interviews in the form of personal conversations using an interview guide were undertaken. The first and second with EPA senior programs officers took place in Accra Ghana on 25-09-2007 and 26-09-2007. These were conducted by the researcher. The principal subjects discussed were on (1) *monitoring (verification) and enforcement of*

environmental regulations by EPA and (2) *adherence to, penalties for and challenges associated with environmental regulations in Ghana* respectively. The third and fourth interviews were conducted per phone by the researcher on 21st May 2008 and from Cottbus, Germany. The principal subjects discussed here were on corporate social and environmental responsibility by mining firms in Ghana (see appendices 2 and 3 for interview guides).

3.7 Analysis of data

As mentioned earlier both qualitative and quantitative research approaches were employed in this study. Aspects of the questionnaire hinging on open and closed ended questions which provided explanatory aspects of the research were qualitatively analyzed. The approach here was descriptive and analytical. The use of a Likert ranking scale for aspects of the questionnaire allowed a quantitative evaluation of the responses.

3.7.1 Quantitative analysis

Use of Likert scale

The Likert scale was originally developed by Rensis Likert in 1932 (Likert, 1932). It was originally applied in psychometric research (studies involving measurement of knowledge, abilities, attitudes and personality traits). However it has been the most widely used scale nowadays in survey research (http://en.wikipedia.org/wiki/Psychometrics). A Likert scale measures the degree to which respondents agree to a statement. In this study a Likert score on a scale one to five was used to evaluate corporate environmental performance among small, medium, and large enterprises as well as among different Industrial types of manufacturing enterprises.

Procedure

A five point Likert scale was employed in this study. Such rating scale (Likert scale) was used in the study to evaluate performance by evaluating the extent to which an environmental practice is carried out. As mentioned earlier, all companies sampled in this study were asked several questions in 3 broad areas on: (1) the degree to which they complied with legal and governmental regulatory requirements on the environment, (2) the degree to which they undertook environmental management (pollution control) and resource conservation initiatives and (3) the extent to which they pursued some defined corporate environmental planning and policy issues. The statements posed in these 3

broad areas encapsulated the 5 main category areas of corporate environmental governance discussed in chapter 1 (environmental values, oversight, processes, performance indicators and policy). The responses were then entered into Microsoft Excel worksheet to compute frequencies and percentages as well as to determine the relationships between variables in the questionnaires. The ratings in the study ranged from "strongly disagree" (1 point), through "strongly agree" which scored a maximum ranking point of 5. Provision was also made for a "not-applicable" response which was not scored (see questionnaire in appendix 1).

CEPPI Index

In this study an index named "Corporate Environmental Performance Perception (CEPPI) index" was developed to evaluate environmental performance in 3 main categories of corporate management mentioned earlier (legal compliance, environmental management and resource conservation initiative and pursuance of environmental planning and policy issues). As Ramos and de Melo (2006) noted, an environmental indicator is derived from a single variable to reflect some environmental attribute and can be used individually or aggregated into an environmental index. The index is so named since the responses of the Likert scores used in this aspect of the study assesses environmental performance based on the performance perception of environmental managers who were asked to rank their firms' environmental performance. In developing this index, the overall environmental performance for all 120 companies in the 3 broad categories was evaluated separately and also together. The scores for the Likert scaling were aggregated and averaged to reduce scoring to a range 1 to 5 to obtain an overall CEPPI index for all companies, SMEs, large companies and also for the different types and categories of industries. The results were then represented graphically using Microsoft Excel 2003 edition. Development and evaluation of the model underlying the index was derived as follows:

Let A be *Industry's performance on compliance in legal and government environment regulatory requirements.* Then $A = a_1 + a_2 + a_3 ... + a_p$ (3.1)

Where a_1, a_2, a_3… a_p are performance scores of subcomponents of A and p is the number of components of A evaluated.

Let B be *Industry's performance on pollution control and resource conservation initiatives.*

Then $B = b_1 + b_2 + b_3 \ldots + b_q$ (3.2)

Where b_1, b_2, $b_3 \ldots b_q$ are performance scores of subcomponents of B and q is the number of components of B evaluated.

Let C be *Industry's performance on management commitment and taking up of environmental policy issues.* Then $C = c_1 + c_2 + c_3 \ldots + c_r$ (3.3)

Where c_1, c_2, $c_3 \ldots c_r$ are performance scores of subcomponent of C and r is the number of components of C.

Then the overall (aggregated) performance, P per questionnaire (respondent; per firm) will be $P = A + B + C$ (3.4)

For *n* number of companies, the aggregated CEPPI index, $CEPPI_{aggregate}$ will be

$$CEPPI_{aggregate} = \sum_{i=1}^{n} A_i + \sum_{i=1}^{n} B_i + \sum_{i=1}^{n} C_i \quad (3.5)$$

For 120 companies and hence 120 questionnaires evaluated, the CEPPI score is:

$$CEPPI_{aggregate} = \sum_{i=1}^{i=120} A_i + \sum_{i=1}^{i=120} B_i + \sum_{i=1}^{i=120} C_i \quad (3.6)$$

The equation 3.6 is an aggregated score, hence to measure corporate performance on the key environmental governance dimensions; we convert to a scale of 5 to obtain the CEPPI index thus:

$$CEPPI_{index} = (\sum_{i=1}^{i=120} A_i + \sum_{i=1}^{i=120} B_i + \sum_{i=1}^{i=120} C_i)/120(p+q+r) \quad (3.7)$$

Similarly for 24 small companies, we compute the scale as:

$$CEPPI_{small} = (\sum_{i=1}^{i=24} A_i + \sum_{i=1}^{i=24} B_i + \sum_{i=1}^{i=24} C_i)/24(p+q+r) \quad (3.8)$$

For the 36 medium sized companies, we compute as:

$$CEPPI_{medium} = (\sum_{i=1}^{i=36} A_i + \sum_{i=1}^{i=36} B_i + \sum_{i=1}^{i=36} C_i)/36(p+q+r) \quad (3.9a)$$

And for 60 large companies we obtain:

$$CEPPI_{large} = (\sum_{i=1}^{i=60} A_i + \sum_{i=1}^{i=60} B_i + \sum_{i=1}^{i=60} C_i)/60(p+q+r) \quad (3.9b)$$

Equation 3.7 is the assessment score for all 120 companies. There were 60 large companies, 36 medium and 24 small companies. The assessments for small, medium and large companies were done separately as well and the results compared.

3.7.2 Qualitative analysis

As mentioned earlier, this study makes use of both quantitative and qualitative methods. In this aspect of the study, the author's value judgment and subjective opinion in choosing the criteria to be investigated was made use of. As Jensen (1991) posited, not all research questions can be answered adequately through a hypothetico-deductive method. Methods that make use of the investigators feelings and normative assessment is being used increasingly. Aspects of this thesis deals with analysis of environmental policy instruments, analysis of the legal context of environmental management in Ghana as well as the institutional forces influencing corporate social and environmental responsibility as part of corporate governance by mining companies in Ghana. Such analyses have been dealt with chiefly through qualitative means. In most cases the treatments have been theoretical and findings have been situated in the context of theoretical concepts and International best practice models. Document analysis has been featured prominently as a qualitative investigative research tool and this has also been used retrospectively in chapters 1 and 2.

3.8 Achieving reliability and validity of data

Reliability relates to the absence of random errors of measurement, demonstrating that the operations of the study such as data collection procedures can be repeated, with the same results (Ghauri and Grönhaug, 2005). Construct validity on the other hand means establishing the core operational measures for the concepts being studied. In other words it reflects the extent to which the study measures what it claims to investigate. This could be obtained by using multiple sources of evidence (Ghauri and Grönhaug, 2005). Efforts were put in to achieve both reliability and validity in this study. Multiple sources of evidence were used during data collection. Apart from primary data collected from companies, interviews were held with EPA representatives and others. In some cases such interviews were held to confirm some of the responses from earlier interviewees. Further, secondary documents and reports submitted by companies to EPA were consulted to cross-check validity of data gathered.

In addition since companies were asked to assess their own environmental performance on a scale 1-5, there was the tendency that some companies may deliberately score themselves higher in order to put their companies' efforts at environmental management in a favorable light. To minimize this possibility of "social desirability bias" (Barnerjee, 2002), multiple approaches were used to ensure data reliability and validity. First, the questionnaires were given to people deemed principled professionals and experts in their fields. Thus there was no reason to assume that companies were reporting false information about their environmental practices. Secondly, some of the questions were deliberately repeated. This made it easy for inconsistent or "rote responses" to be spotted and such responded questionnaires rejected. This technique of *"capture-eliminate rote response technique"* ensured unreliable responses were not used. Thus all such questionnaires were excluded from the final analysis. In all, out of the 126 questionnaires returned, 6 were rejected for either incomplete information or inconsistencies by respondents in administering the questionnaires. Every effort has therefore been taken to ensure that the responses to the questionnaires reflected the general practice of the firms involved. The data presented based on this study therefore represents to a large extent, the exact data gathered from the questionnaires administered. Any weaknesses therefore may be weaknesses associated with the sources themselves. Efforts have been made to reduce to the barest minimum if not to eliminate such weaknesses entirely. Inspite of all the efforts put into ensuring reliability and validity of the data generated, the author hesitates to draw conclusions about the "greenness" of a company on the basis of the three broad areas assessed in the quantitative study alone. Descriptive aspects of the firms' environmental performance must be considered as well the environmental impacts of the activities of the firms studied to draw conclusions about their "greenness" (see also chapter 7).

3.9 Summary

In this chapter a generic overview of the methodology employed in the study has been presented. Both qualitative and quantitative methods have been employed in the study. The qualitative method has been used retrospectively from chapters 1 and 2. An index, "CEPPI", for evaluating corporate environmental performance in 3 key areas- (1) legal and environmental regulation compliance, (2) environmental management (pollution

control) and resource conservation initiatives and (3) corporate environmental planning and policy issues has been developed. The mathematical computation and model of the index has been expunged upon. Further, sources of data for the study have been established, a step-by-step procedure of how the research was conducted has also been reported in addition to how reliability and validity of data was achieved. The next chapter looks at “analysis of environmental policy instruments” stressing on their potential applicability to the Ghanaian context.

4 Analysis of environmental policy instruments

4.1 Introduction

This chapter analyses and discusses policy options available for environmental management in Industry. The basis for environmental policy is expounded, the main environmental policy instruments appraised and an assessment of the application of some of these instruments in the context of developing countries especially Ghana, reviewed.

4.2 Public environmental policy instruments

Public policy is defined as a plan of action (or a decision not to take an action) undertaken by a government to achieve some broad purpose affecting a substantial segment of a nation's citizens (Hill, 1997; Sullivan 2005). Environmental policy instruments are thus defined as tools used to implement public environmental policy (Sullivan, 2005). In this section, some common environmental policy tools used by governments are examined and the basis for doing that reviewed.

Command and control instruments are 'complex web of legislation, standards and rules' (Sullivan, 2005) usually set off by a government agency to control environmental problems and improve the quality of the environment. They are usually aimed specifically at controlling pollution through emission, technology, or process standards (Hunter et al., 2007). Such an instrument becomes necessary because of 'market failure'. Market failure is the label for the view that the free market does not provide a panacea for all economic problems (Black, 2002). One important source of market failure is externalities. *Negative* externalities in the context of the environment refer to environmental costs that are not borne by businesses. This often is the case because public goods such as water and air most often have no defined ownership. It has been argued by economists that most environmental problems emerge when there is no ownership of property or when property rights are ill defined (Goldfarb, 1997). The inadequate assignment of property right results in the *tragedy of the commons*[3] a situation where public goods or open access resource such as air and water is polluted with impunity. To avert the tragedy of the commons, firms need to internalise their externalities. In other words they have to take responsibility for their environmental

[3] This term was popularised and adopted into scholarly literature following Garrett Hardin's classic article on open- access resource also entitled "Tragedy of the Commons" in 1968.

inactions. One way of doing this is through "command and control" regulations mentioned earlier. This can be done by the government taxing businesses for environmental damage and to put in place other legislations to regulate their activities. Hence externalities provide a basis for public policy to intervene on behalf of the environment. By increasing the costs of polluting activities, environmental taxes discourage unnecessary pollution and waste. Environmental taxes are therefore a means of internalising environmental externalities. Another way of averting the tragedy of the commons is the use of tradable emission permits which is an *economic policy instrument*. Here property rights are created in the form of marketable rights- for example the right to emit a ton of sulphur dioxide or to sell a pound of chloroflouro carbons (CFCs) (Hunter et al., 2007). Further, as a policy, governments can also vest ownership of open access resources in individuals or communities. With such defined ownership, each individual or community "protects" their own resources from being degraded since they view the resources as personal properties (Nukpezah and Ertel, 2008).

'Command and control' instruments have however been criticised on the grounds that they are inefficient and inflexible and impose unnecessarily high costs, expensive monitoring and record-keeping requirements on industry (Sullivan, 2005). Companies and to a lesser extent governments have thus strongly promoted voluntary approaches as preferred alternatives to command and control regulations. This is because they are deemed pro business, increasing business flexibility and meeting environmental goals more cost-effectively and more quickly than traditional command and control approaches (Sullivan, 2005). However, the support for voluntary approaches is not universal. Critics highlight consequences such as reduced government control over the environmental dimensions of business, reduced accountability for business, the weakening for legal frameworks and the risk of reductions in environmental quality (Sullivan, 2005). Clearly therefore there are strengths and weaknesses associated with both and hence the need for a "hybrid" system to ensure better environmental performance on the part of companies. Further, as discussed in chapter 2, putting in public policies alone through laws and regulations to regulate companies, does not lead to optimal environmental performance since laws are themselves reactionary which means there is the need for companies to be responsible through adoption of voluntary standards.

Apart from “command and control” regulations, governments also use *information based approaches* to effect good environmental stewardship or responsiveness on the part of companies. According to Ehrlich and Holdren (1971), environmental impacts are a consequence of population growth, affluence or consumption patterns and technological innovations. This relationship, called the IPAT model describes environmental impact I as a function of Population, P, affluence or consumption, A, and technology, T. One important principle of the Rio declaration is on controlling consumption. Information based approaches allow consumers to make informed decisions regarding whether to consume a product or not based on its potential or real environmental impact. It is partially aimed at controlling consumption of a product that has negative environmental consequence. Access to information has thus been widely recognised as an essential prerequisite for effective community input into environmental decision-making (Sullivan, 2005). Information based instruments thus include public reporting, community right-to-know programmes, product certification and ecolabelling programmes (Haughton, 1999; Sullivan 2005).

4.3 Corporate environmental policy tools

Corporate environmental policy may be defined as an action plan undertaken by an enterprise (or a corporation) to achieve a broad set of objectives and targets affecting a substantial segment of its stakeholders or constituents in relation to environmental concerns. Such policy may be based on voluntary approaches which are schemes where organisations agree to improve their environmental performance beyond legal requirements (OECD, 1999:21, 46). As Sullivan (2005) ascribes, the term ‘voluntary’ may not strictly be accurate as voluntary approaches are often implemented in response to consumer and community pressures, industry peer pressure, competitive pressures or the threat of new regulations or taxes. Hence voluntary approaches are viewed more as ‘encouraged’ or ‘quasi-mandatory’, where such programmes operate within and rely on elements of the existing legal system (Khanna and Damon, 1999; p. 2). This assertion is consistent with what has been stated earlier that such policy tools are derived from mostly legal and ethical concepts and principles. Gaines and Kimber (2001) and also OECD (1999), identify 4 categories of voluntary approaches as: (i) unilateral commitments, (ii) private agreements made by direct bargaining between polluters and those affected by

pollution, (iii) agreements negotiated between industry and public authorities and (iv) voluntary programs developed by public authorities. Unilateral commitments, which can be either individual or collective, include company codes of conducts, environmental management systems, corporate environmental reporting, environmental accounting and environmental auditing. Private agreements are contracts or other forms of agreement between polluting firms and those affected by other stakeholders (local communities etc). Negotiated agreements are contracts between public authorities and industry and generally include targets and a time frame within which the target is to be met. These are often underpinned by a threat of regulatory action if the conditions of the negotiated agreement are not met. Finally, public voluntary programs (such as eco labelling, award of prize programs, research and developments or innovative programs) involve organisations agreeing to meet standards developed by public bodies (Sullivan, 2005). It is worth noting that environmental management systems have received attention globally as an International best practice model for industry. In this thesis too its adoption by companies has been investigated. Hence a review of EMS, its processes and limitations as a corporate environmental management tool has been reviewed.

4.4 Environmental management systems

Environmental Management Systems (EMS) is a management system that plans, schedules, implements and monitors those activities of the firm aimed at improving environmental performance (Sroufe, 1998) Thus EMS provides standards for managing the environmental impacts of business operations (Hunter et al., 2007). There are several management systems and notably amongst them are EMAS and ISO 14001 EMS.

EMAS

The European Community Eco-management and Audit scheme (EMAS) was launched in 1993 as a voluntary program for European based Industry. However the regulation became effective in 1995 and establishes a series of requirements for certification. Participating EU companies establish an EMS for the production site and are then assessed for compliance at periodic intervals by an accredited third party (Hunter et al., 2007). The requirements for EMAS certification include the following:

- A written corporate environmental policy
- An inventory of the environmental impacts of a company's production processes
- A program of environmental measures to track performance
- A management system including procedures to implement periodic audits

EMAS also requires continuous improvement in environmental performance. Further, it requires compliance with its standards and 'rewards' companies and sites by allowing them to use an EMAS symbol on its stationary for a certified site to show it complies with EMAS standards (BNA International Environment Daily, 1994). Using the EMAS symbol to advertise for company products is however forbidden (BNA International Environment Daily, 1994). The EMAS system has the potential of brewing competition among firms leading to experimentation, innovation and growth. Further, it has the capacity of enhancing the corporate image of firms adopting it and also save high transaction costs that will otherwise be spent on adhering to command and control regulation. It need not be stressed that EMAS is an environmental management tool for European countries. However the elements espoused within its framework is equally applicable to a developing country setting.

ISO 14001 EMS

ISO 14001 EMS has been proposed as international best practice model for voluntary approaches in environmental management (Sullivan, 2005). ISO 14001 provides a model for environmental management systems to enable firms to meet, and continue to meet their legal and policy obligations. It is based on a model of policy development, planning, implementation and operation, checking and corrective action, and management review (figure 4.1). The key stages of ISO 14001 could be summarised this way:

Environmental Policy

This involves a written environmental policy aligned with the organisation's business or mission. This also commits the organisation to compliance with applicable laws and regulations of the territory or state where the organisation operates. The prepared document must be documented, implemented, maintained and communicated to all workers.

Planning processes

The EMS must have a documented planning process that identifies the 'environmental aspects' of the organisations activities, products and processes, as well as applicable legal and regulatory requirements. In addition specific environmental objectives and targets must be highlighted in the planning stage in addition to setting out environmental management programs.

Implementation and operation

The ease of implementation and operation of the ISO 14001 EMS is a function of organisational structure and responsibilities put in place. Organisational structure and responsibilities are the architecture of implementation (Hunter et al., 2007). ISO 14001 emphasises defined roles, responsibilities and authorities associated with essential components of EMS, including a direct accountability links to senior management. Further, training awareness, and competence in managing the organisations environmental aspects are key components. Communication processes are also recognised as integral component of implementing ISO 14001 EMS. Communication processes must include internal systems for employees and managers as well as for external stakeholders- customers, suppliers, shareholders, communities, regulatory agencies and operations facilities. In addition, ISO 14001 emphasises the need for organisations to identify specific operations and activities associated with significant environmental impacts and then develop and document operating procedures (e.g. procedures to monitor and control pollutants and emissions) to ensure each activity causing significant environmental impacts is carried out under specific conditions. In addition ISO 14001 EMS requires emergency preparedness and response plans and procedures. Emergency procedures must include prevention and mitigation procedures such as spill prevention and clean up measures (Hunter et al., 2007). Finally EMS documentation and document control procedures are also required as part of implementation systems.

Checking and corrective action

A critically important requirement in the ISO 14001 EMS is a system of procedures to monitor and measure an Organisation's compliance with regulations- its overall

performance toward its environmental objectives and targets. An EMS audit determines if the system of procedures continue to conform to ISO 14001 requirements. The ISO organisation is also mandated to maintain a process for investigating 'non-conformance' e.g., non-compliance *Management Review*

The final component of the ISO 14001 standard emphasises a system whereby senior management conducts a review of the overall effectiveness of the EMS. As Hunter et al., (2007) put it, "the management review is not an audit or conformity assessment of the EMS but rather more like a traditional management operations review. It includes an evaluation of how successfully environmental management has been integrated with business operations". Further, the management review seeks to redirect the EMS. For example in the event that an organization is close to meeting a specific environmental objectives, management review can initiate setting a new environmental objective consistent with its environmental policy and commitment to continuous improvement (Hunter et al., 2007).

Non-conformance and corrective and prevention action

ISO 14001 provides for the establishment and maintenance procedures for defining responsibility and authority for handling and investigating non-conformance, taking action to mitigate any impacts caused and for initiating and completing corrective and preventive action (Hunter et al., 2007).

Records

Record keeping for enterprises adopting ISO 14001 is an important requirement in the ISO 14001 standards. Record keeping implementation is mandatory and changes in the documented procedures resulting from corrective and preventive actions have to be recorded (ISO, 1996). Further, an enterprise is obligated under the ISO system to establish and maintain procedures for the identification, maintenance and disposition of environmental records (Sroufe et al., 1998). Records are to include training records and results of audits and reviews. Regarding other aspects of record keeping, the International Standardization Organisation (ISO, 1996) puts it this way:

"Environmental records shall be legible, identifiable and traceable to the activity, product or service involved. Environmental records shall be stored or maintained in such

a way that they are readily retrievable and protected against damage, deterioration or loss. Their retention times shall be established and recorded".

Many of the benefits of EMS have been highlighted in the literature and such benefits accruing from EMS implementation could be immeasurable. For one EMS could serve as a source of competitive advantage especially for multi national firms due to greater efficiency gained from systematic implementation of EMS. For those firms ready to face the challenges of successful EMS implementation and even go beyond compliance, there are many potential benefits and indeed EMS is becoming increasingly important to both national and multinational firms (Sroufe et al., 1998). This is evidently the case because underlying its emergence and acceptance is the premise that improved systems associated with EMS can make achievement of strategic goals more likely (Sroufe et al., 1998). In addition, it is predicted that new standards such as ISO 14000 would set a higher level of expected environmental performance worldwide, (Sroufe et al., 1998). Many issues surround the role of these types of systems in the strategic management of a firm. However, in spite of the evidence of a linkage between EMS and enhanced corporate performance (Rondinelli, and Vastag, 1997), there exists evidence arguing against the need for investing in EMS. For example, Walley and Whitehead (1994) noted a negative correlation between environmental investments and stockholder value and thus many firms only see EMS as a cost of doing business and are apparently taking the position of only investing enough to meet the current regulatory requirements (Sroufe et al., 1998). However other researchers have found positive correlation between environmental investments and firms profitability (White and Kiernan, 2004).

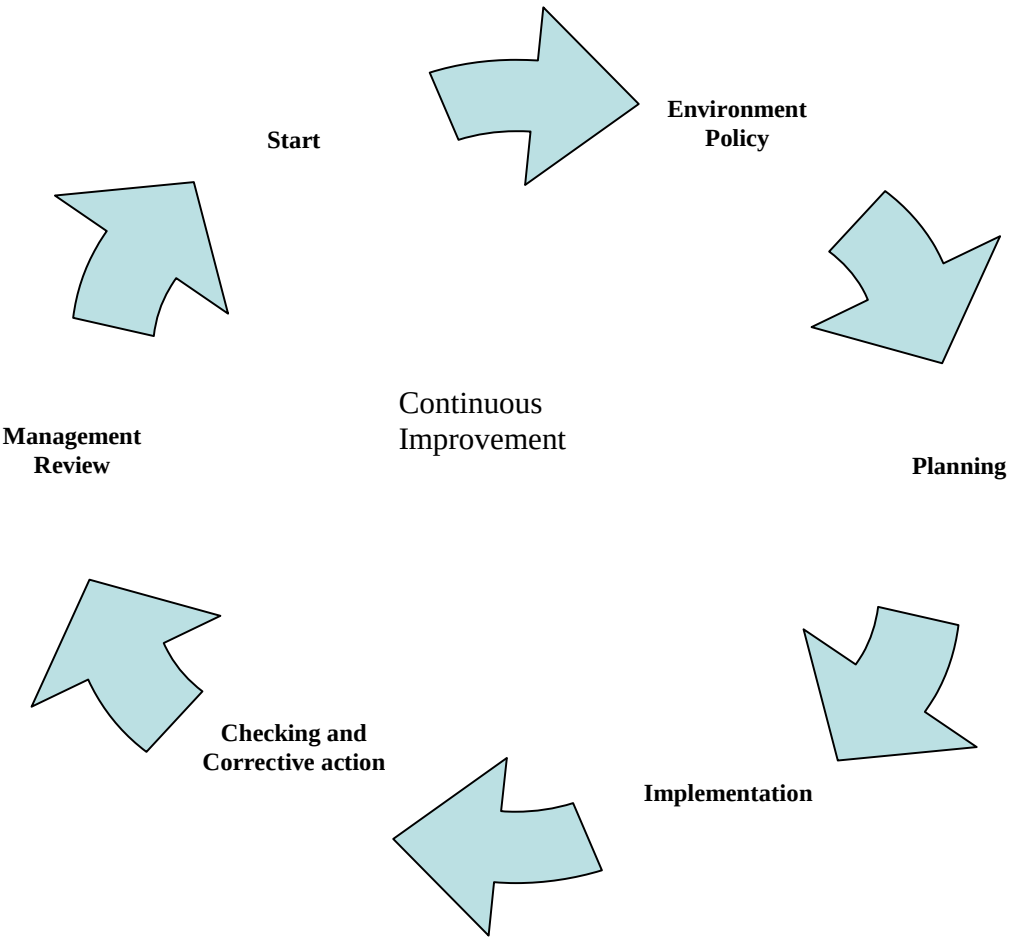

Figure 4.1: EMS model for ISO 14001

Further, criticisms have been levelled against ISO 14001 as a tool for environmental management. This is partly because EMS serves as an implementation tool only and provides important framework for compliance within national legislation or targets and objectives set by industry itself. Additionally, some environmental management researchers have criticised ISO 14001 for its over reliance on conformance rather than

performance (Roht-Arriaza, 1995). In its current form, ISO 14001 is an implementation tool that implements objectives and targets set within the framework of national legislation or corporate policy. Hence if set targets are not ambitious enough, it could result in compliance/conformance being achieved without a correspondingly high environmental performance. Thus as Stenzel (2000) puts it, "ISO 14001 does not set performance standards, but is simply a tool to enable firms to improve their performance in line with the environmental goals specified in the firms environmental policy". Also, its public disclosure provisions are considered weak. Further, the lack of public access to its environmental data has been criticised by some groups (Hunter et al., 2007). ISO 14001 has also been criticised for not having any health and safety standards (Hunter et al., 2007). Gleckman and Krut (1996) contrasted ISO 14001 with EMAS and argued that EMAS which does have a public disclosure provision results in public pressure motivating companies to improve environmental performance. Gleckman and Krut (1996) further asserted that without public disclosure of corporate environmental performance, self-monitoring is contradictory. It seems therefore that the greatest 'nemesis' for ISO 14001 is its inadequate disclosure requirement which can be improved when firms adopt other voluntary measures.

In spite of the above criticisms, counter arguments have been posited in favour of EMS adoption as an environmental management tool. For example, the provision for continuous improvement counters much of the criticisms and also ISO 14001 reflects very good environmental initiatives or willingness. Several empirical studies have also associated benefits with the adoption of ISO 14001 and other management systems (see table 4.1). It is thus a compliance tool and also a good starting point for a firm aiming to achieve sustainability. ISO 14001 is an auditable standard governing the essential elements of an EMS. It is advantageous because its requirements are stated broadly to accommodate any kind of organisation whether small, medium or large irrespective of the social, cultural and economic environment such organisation is found. In addition ISO 14001 documentation is a clear basis of understanding between people. It also avoids contradictions between procedures and serves as basis for training. It is proof of well intended environmental initiative in case of liability and finally it facilitates internal and external communication.

Sexton *et al.,* (1999) have argued that adoption of other voluntary standards that affect the core belief and values of a firm could aid the firm to accelerate towards sustainability (better environmental performance) if such voluntary standards together with ISO 14001 are implemented. Thus ISO 14001 is a tool that must be supplemented with other policy instruments. In the next section, the essential ingredients of these other voluntary codes of conducts are summarised. The need to combine regulation, EMS and other voluntary instruments to complement each other has been emphasised by Eisner (2004). Eisner (2004) advocates for changes in regulatory design that could promote ongoing gains in corporate environmental performance through the creation of a hybrid system combining elements of public regulation, government-supervised corporate self regulation (public voluntary approaches), mandatory information disclosure and green procurement. Therefore EMS in combination with other voluntary environmental codes of conducts when applied properly have the prospects of continually improving environmental performance of organisations, saving costs for organisations through more efficient resource use and reduction of waste disposal costs and strategic business advantage in an increasingly competitive market (Cascio et al., 1996; Sunderland, 1997).

Table 4.1: Drivers, Benefits and Barriers to EMS Implementation (reported in the literature and in this present study)

Drivers/Benefits	**Reference(s)**
1. Compliance with government legislation	Madsen and Ulhoi (1999)
2. Tougher legislation	Mbohwa and Madzinga (2000)
3. Demand from Public and external stakeholders	Mbohwa and Madzinga (2000)
4. Reduction in the risk of sanction	Madsen and Ulhoi (1999)
5. Corporate Image improvement	Del Brio (2000), Hillary (2000), Strachan (1999)
6. Improvement in relation with external stakeholders	Azzone et al (1997), Wittman (1996)
7. Reduction in the risk of accidents	Mohammed (2000)
8. Improved relation with regulators	Alemagi (2005)
9. Improvement in product quality	Alemagi (2006)
10. Avoidance of liability costs (economic benefit)	Alemagi (2006)
11. waste reduction, energy conservation and recycling	Alemagi (2006)
Barriers/constraints	
1. Unclear regulations	Camino (2001)
2. High cost and lack of support from financiers	Camino (2001)

3. Limited number of locally based EMS auditors	Nukpezah (2009; this study)
4. Technology limitation	Alemagi (2006)
5. Lack of Information (Lack of stakeholder and employee dialogue)	Nukpezah (2009; this study)
6. Apathy (indifference) and resistance due to lack of employee support	Nukpezah (2009; this study)
7. Lack of skilled employee knowledge (Human resource problem)	Nukpezah (2009; this study)
8. Time constraints (Unwillingness/Inability to compromise operations time for training)	Nukpezah (2009; this study)

4.5 Corporate codes of conducts

Voluntary corporate compliance with codes of conduct can both be a signal by companies that they are responsible partners in environmental protection and a recognition that responsible environmental management increases profit (Hunter et al., 2007). Below is a brief review of some of these voluntary codes of conducts aimed at improving environmental performance in Industry.

The Ceres Principle

Following the Exxon Valdez oil spill in 1989, a group of concerned consumers, investors and environmentalists formed the Coalition for Environmentally Responsible Economies (CERES) and developed a set of principles to be known later as the CERES principles which set broad standards for evaluating corporate activity and are intended both to improve the environmental performance of signatory companies and to enable investors to make informed decisions on a company's environmental performance. The CERES principles are a model code of environmental conduct applicable to all corporations, public or private, regardless of size or industry (see appendix 4A for text of the principles). A company adopting the CERES principles pledges to monitor and improve the environmental impacts resulting from its use of natural resources, reduce and dispose of wastes, conserve energy, reduce risk, create safe products and services, restore any environmental damage, (waste reduction and recycling emphasized in the CERES principles) and improve environmental management through audits, reports, and public communication. Companies endorsing the CERES principles must also annually publish a CERES report, providing information related to the company's commitment to the principles (Hunter et al., 2007). The report assesses the company's policies and practices related to each specific principle. The reports are to be made available to shareholders

and to interested members of the public. The rational for the report, is to both inform stakeholders and internal management. It must be mentioned that the CERES principles is not widely adopted. However it has increased international public awareness on corporate environmental accountability and served as a model for future initiatives (Hunter et al., 2007). An important difference with the EMAS or ISO 14000 standards is that there is no independent third party verification of compliance with the CERES Principles (Hunter et al., 2007).

International Chamber of Commerce's Business Charter for Sustainable Development

The International Chamber of Commerce (ICC) is a Paris-based non-governmental organisation created in 1919. It has over 7,000 member companies and business organisations operating in 125 countries (Hunter et al., 2007). The ICC has its own set of voluntary corporate standards known as the Business Charter for Sustainable Development. The charter contains 16 principles (appendix 4C) for environmental management that companies should integrate into their daily operations. More than 2300 companies have pledged their support for the charter since it was issued (Hunter et al., 2007). The key principles set out in the charter recognise environmental management as among the highest corporate priorities. Also it calls for prior assessment of a new project's environmental impact, and also stresses that products and services developed should not have significant environmental impact (design for environment) and should also be safe for its intended use (Hunter et al., 2007). The Charter's objective is to assist a wide variety of organisations in improving their environmental performance by implementing management practices in accordance with the Charter's principles, measuring progress, and reporting progress both internally and externally (Hunter et al., 2007). The ICCs International Environmental Bureau is responsible for the Charter program and a related project to document case studies of organisations who demonstrate sound environmental management practices advocated by the Charter. The goal is to provide 'best practice' examples to serve as guides and incentives for companies implementing the charter (Hunter et al., 2007). The ICC Charter calls on firms to recognise environmental management 'as among the highest corporate priorities and as a key determinant to sustainable development and it is explicit in its discussion of the use of Life-cycle assessment (Sexton et al., 1999).

The Global Compact

This was launched by the then UN Secretaty-General Mr Kofi Annan for Trans National corporations (TNCs) to demonstrate 'good global citizenship' in their international operations. The main issues regarding the environment pointed out in the Global compact include the need for businesses to support a precautionary approach to environmental challenges, need to undertake initiatives to promote greater environmental responsibility and the need to encourage the development and diffusion of environmentally friendly technologies (www.un.org/partners/business/fs1.htm).

Total Quality Environnemental Management (TQEM)

This scheme is meant to introduce quality management themes and practices into environmental systems. It seeks to bring environmental management closer to firms' product-oriented systems (Sexton et al., 1999). It promotes continuous learning, assessment and feedback, data driven decision tools, training, and other standard practices and has the possibility of elevating the status of environmental management within a firm's existing values (Sexton et al., 1999).

Ecoefficiency

The conceptual foundation of ecoefficiency is premised on the fact that prevailing consumption of material and energy is inefficient. Eco efficiency is a management philosophy and adherents to this philosophy encourage business to become more competitive, more innovative and more environmentally responsible (Sexton et al., 1999). Eco efficiency aims at achieving higher levels of economic and environmental performance through continuous improvement (Sexton *et al.,* 1999). Eco efficiency thus aims at producing 'more from less' (WBCSD, 1996; Sexton et al., 1999). The extent to which companies embrace efficient use of energy and natural resources has been assessed also in this thesis. However as Sexton *et al.,* (1999) argues, 'while more efficient use of resources is undeniably critical, eco efficiency is an insufficient means to achieve the full sense of sustainability'.

Product Stewardship

It is the management philosophy whereby responsibility of manufacturers does not end at merely delivering a product or service to the customer but accepts responsibility across

the entire product life cycle (De Simone and Poppoff, 1997). This concept has the potential of challenging and pushing on the vision of a firm and its value, moving it towards improved environmental performance (Sexton et al., 1999). Those adopting this management code find the need to adopt LCA and DFE as means of extending responsibility and stewardship beyond the traditional view of the customer.

Responsible Care

Responsible care emerged out of concerns over public identity of the chemical industry especially following the Bhopal disaster in India and other incidents, and the self-realisation that institutional, industry wide action was needed to restore and maintain legitimacy among their stakeholders (Sexton et al., 1999). For example in the aftermath of Bhopal, in December 1984, the board of directors of the Canadian chemical producers association voted to make signing on to the responsible care principles of chemical management a condition of membership in the association. In addition, member firms were to enact a program of 'community Awareness and Emergency Response (CAER) at each facility to help communities develop plans in the event of a chemical accident (Sexton et al., 1999).

Design for Environment (DFE)

DFE is a systematic approach to addressing the entire system of environmental impacts across the whole product life cycle (Lenox and Ehrenfeld, 1995; Sexton et al., 1999). DFE is the systematic process by which firms design products and processes in an environmentally conscious way across the entire product life cycle. DFE impacts the core processes by which the firm renews itself. It has a greater potential to lead towards sustainability if adopted (Sexton *et al.,* 1999). Its adoption is however a function of the core belief and value of the firm (Sexton et al., 1999).

The Caux Principle

The Caux roundtable (www.cauxroundtable.org) developed a number of ethical principles for sustainable business. The roundtable believes that the world business community should play an important role in improving economic and social conditions. The Caux Principles emphasises on responsible business practices which promotes living and working together for the common good, enabling cooperation and mutual prosperity to coexist with healthy and fair competition and also protecting the environment. It

emphasises that responsibilities of business should go beyond shareholders, to include all stakeholders (principle 1; appendix 4D).

4.6 Summary

In summary, this chapter has reviewed the literature on environmental policy instruments available in use for companies globally. These policy instruments include command and control regulations, information based approaches and voluntary approaches which are schemes where organisations agree to go beyond requirements of the law. Some of the policy instruments have been criticised. Therefore no single policy tool is to be considered superior. The emphasis therefore is to combine these policy tools to achieve maximum environmental benefits. In this thesis a framework is developed incorporating all the essential concepts of environmental policy instruments and corporate environmental governance to measure environmental performance by companies in the manufacturing sector of Ghana. In the next chapter, a SWOT analysis of the legal framework governing environmental management in Ghana is undertaken.

5 Framework for environmental governance in Ghana: A SWOT analysis

5.1 Background

The recent history of environmental policy in Ghana can be traced back to 1974 against a backdrop of increasing environmental degradation because of Ghana's quest at Industrialisation following Independence in 1957. The impact of environmental degradation on the Ghanaian economy cannot be shelved aside or treated lightly. For example an attempt made to estimate the costs imposed on Ghanaians and the economy from environmental degradation in sectors such as agriculture, forestry, hunting, industry and mining using the economic valuation method- *willingness to pay* approach revealed that the total estimated annual losses in 1988 amounted to 41.7 billion cedis, the equivalent of 4% of total GDP (Laing, 1994). The magnitude and pervasiveness of the losses impose a strong case for taking remedial action. In addition, untreated industrial and mining effluents including waste emanating from textile, food and beverage factories as well as emissions from petroleum refining, mineral exploitation and processing industries, such as fluorides, sulphur dioxide alumina dust, asbestos particles and cement dust, made a bad situation worse and provided requisite background for policy intervention through enactment of laws.

5.2 Methodology

This chapter made use of mostly secondary data in its analysis and conclusions. Such data include statutory documents like Ghana's Environmental Protection Act, policy documents and journal articles. However primary sources of data were also used. Sources of such data included unstructured interview using an interview guide held with 2 EPA senior Programs officers on 26-09-2007 and 27-09-2007.

5.3 Environmental protection in Ghana

In Ghana, the history of environmental legislation could be traced to the Stockholm conference on the Human environment in 1972. Principle 17 of the Stockholm Declaration states that:

"Appropriate national institutions must be entrusted with the task of planning, managing or controlling the environmental resources of states with a view to enhancing environmental quality"

The recognition of Principle 17 of the Stockholm Declaration led to the establishment of the Environmental Protection Council of Ghana and the law establishing its establishment was National Redemption Council Decree (NRCD) 239. A careful analysis of this Decree however revealed that the law was 'toothless' in dealing with environmental threats. For example section 2 of the Decree listed eight functions that were devoid of any regulatory and enforcement features. Thus the council was seen only as an advisory, coordinative and educative body (Larsey, 2001). Although the council had additional functions relating to ensuring the observance of proper safeguards in the planning and execution of all development projects, the absence of any 'teeth' with which the council could 'bite' resulted in its persistent criticism as being an impotent council. This resulted in amendment of NRCD 239 to Supreme Military Council Decree (SMCD) 58 in 1976. The amendment allowed power to be given to the chairman of the council to request information. Offences and penalties were also created for breaking the law. Deficiencies however abound in the legislative framework since among other things, it lacked enforcement and regulatory powers, there were no funding provisions and Environmental Impact Assessment provisions were ill defined. Following the Earth Summit in 1992 however, there was renewed impetus to improve the existing legislation. This led to the establishment of ACT 490 through an act of parliament.

5.4 SWOT analysis

ACT 490 paved the way for the establishment of Environmental Protection Agency (EPA) in Ghana. This national environmental law consists of legislation, standards, regulations, institutions and administrations adopted to control activities damaging the environment. In spite of the shortcomings associated with earlier regulations as chronicled above, ACT 490 does not provide a complete panacea for environmental management in Ghana. In this section, I highlight the pros and cons of ACT 490 and its implementation instrument through a SWOT analysis.

A SWOT analysis highlights the strengths, weaknesses, opportunities and threats associated with a programme or policy. According to Paliwal (2006), "a SWOT analysis is a technique commonly used to assist in identifying strategic direction for an organisation or practice (Paliwal, 2006)". It is preferred for the present chapter as it yields

useful information about the future viability and development of Ghana's legal and institutional framework for environmental management.

Strengths

Ghana's Act 490 serves as a mechanism for translating environmental and sustainable development policies into action at the national level. ACT 490 recognised the EPA as a corporate body with right to sue and be sued. The provisions of ACT 490 further include advising the sector minister on policy formulation and making recommendations for environmental protection. Further through ACT 490 the EPA was empowered to coordinate activities of bodies concerned with the technical or practical aspects of the environment. Additionally, the EPA was commissioned to develop a comprehensive database on the environment for the public, conduct seminars and training programmes, gather and publish reports and information as well as impose and collect environmental protection levies (Act 490, 1994). This represents real empowerment and provides a good institutional framework for environmental governance. Thus an important ingredient of ACT 490 is that it is provided with 'teeth'. In other words the law now has regulatory and enforcement powers compared to earlier legislations.

Provision of ACT 490 also mandated the establishment of Hazardous Chemicals committee. This committee is established under section 10 of Act 490. Its functions include but not limited to monitoring the use of hazardous chemical by collecting information on the importation, exportation, manufacture, distribution, sale, use and disposal of such chemicals and also advise the Board and the Executive Director on the regulation and management of hazardous chemicals. Regarding enforcement and control, the agency is given powers to request environmental impact assessment. It further possesses discretionary power respecting activities that have or are likely to have adverse effect on the environment. In addition the EPA coordinates the activities of relevant bodies for the purpose of controlling the generation, treatment, storage, transport and disposal of industrial waste during the product life cycle. The EPA is additionally mandated to issue environmental permits and pollution abatement notices for controlling the volume, types, constituents and effects of waste discharges, emissions, deposits or other sources of pollutants and of substances which are hazardous or potentially

dangerous to the quality of the environment or any segment of the environment. In fact, this provision pre-supposes that the EPA should have an adequate capacity for monitoring. However as articulated in the following sections, in this thesis, this is not the case.

Prescription of standards and guidelines relating to the pollution of air, land and other forms of environmental pollution including the discharge of wastes and control of toxic substances is another mandate of the EPA as well as ensuring compliance with laid down environmental impact assessment procedures in the planning and execution of development projects, including compliance in respect of existing projects. Further, section 28 of Act 490 empowers the minister responsible for the environment by legislative instrument to make regulations for the purpose of giving effect to the provisions of Act 490 upon the advice of the EPA Board (governing body). In 1999 thus saw the birth of Legislative Instrument (L.I) 1652- the environmental assessment regulations 1999. Legislative Instrument (L.I) 1652 mandates project undertakers to register projects and undertake EIAs where applicable. Further, it obliges manufacturing industries among others to submit annual environmental reports and also environmental management plan every 3 years. This is supposed to serve as the basis for continuous improvement by these industries. Under L.I 1652, the EPA reserved the right to suspend, cancel or revoke permits and certificates. Section 26 (1e) of L.I 1652 empowers the EPA to revoke or cancel certificate when proponents fail to comply with mitigation commitments in their annual environmental assessment reports or environmental management plans.

Thus it could be argued that the act provides adequate framework for environmental governance in Ghana. However there are weaknesses associated with the act or its implementation as discussed below.

Weaknesses

Inspite of providing a comprehensive framework for environmental protection, there are weaknesses associated with the legislative process. Act 490 provides that in the event of enforcement due to non-compliance, the *sector minister* (emphasize mine) may 'without prejudice to a prosecution, authorize a police officer, an officer of the agency or any

public officer to use such force as may be necessary to ensure compliance with an enforcement notice'. It seems here the law arrogates a lot of power to the minister who is a political appointee rather than to a police officer or the EPA. This provision potentially allows for political control from the top. In cases where there are conflicts of interest or lack of political will on the part of the minister because of government biased interests, such enforcement of non-compliance by the minister is delayed or not carried out and could compromise environmental quality in favour of government's 'skewed' agenda. Another weakness associated with the legislative framework is that although penalties are provided for non-compliance and obstruction of enforcement officers by companies, such monetary penalty is insignificant and does not take into cognisance the time value of money. In other words the penalty is regarded as fixed and does not take into account loss in monetary value with time. Information available at the time of writing this thesis shows that the penalty for non-compliance by major project proponents regarding EIA is a paltry $ 200 US. This little sum becomes more insignificant with time and in the face of inflation. The consequence of this is that it makes starting an undertaken without environmental permit not too risky. Further because of the insignificance of the penalty, the potential for risking and paying when caught remains high on the part of investors, project proponents and existing industries. Because of poor inspection regime too, the potential for getting away with it too remains high.

Further, for example, although electronic and plastic wastes are major problems in Ghana (appendices 5 and 6) up till now, the legislative framework in Ghana makes no provision for Extended Product Stewardship and Design for Environment or their equivalents. Indeed unlike in Europe and in Germany where the German Packaging Ordinance and the Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on Waste Electrical and Electronic Equipment (WEEE) (http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:037:0024:0038:EN:PDF) provides legal basis for reducing waste volume (through increasing recovery) and increasing recycling rates of such materials, and making manufacturers take responsibility for their products during its life cycle, the law in Ghana is mute on this. Since electronic equipments are usually not manufactured in Ghana, there is the need to make policies that are orientated towards green procurement in relation to goods and

equipments imported into the country. Bilateral and multilateral agreements among nations that encourage return of electronic scraps to country of manufacture, setting up central depository (take back) systems of electronic wastes that are easily recycled by companies as well as central depository systems for plastic wastes has the tendency of improving corporate environmental performance as it relates to plastic and electronic wastes. Indeed the right legislative framework as well as taxing non-green procurements (imports) of electronic equipments must be put into place by government to make it easier on the part of Industry to implement such policies. Thus although in principle, the sustainability principles espoused in chapter 2 are broadly speaking incorporated into ACT 490, they are weakly transposed into national laws.

Threats

In spite of the law, not enough structures are provided to ensure the smooth implementation of the framework. For example Akabzaa and Darimani (2001) report that the EPA lacks the required capacity in terms of personnel. Although the operational environment defined by the law is quite extensive, applying to all types of industry, unfortunately professional staffing level remains woefully inadequate (Akabzaa and Darimani, 2001). This observation agrees with findings from unstructured interviews held by this author with EPA officials in Ghana. For example a senior Programs Officer at EPA reported thus:

"Barriers to successful implementation of government environmental policy by EPA include lack of capacity, inadequate finances and lack of logistics. For example the Pesticide control unit of US EPA has staff strength of 1500. In Ghana a combined Dept of pesticides, chemical control and management has a capacity of 8 and EPA has an overall workforce of 300. The department has no vehicle and must access from a pool to do field monitoring. These results in monitoring not being done sometimes since vehicles may be in use by others. This threatens ability to react to any adverse environmental impact".

Thus although the EPA Board is required by law to appoint inspectors to monitor and inspect industrial facilities, the EPA lacks the required capacity in terms of personnel and finance to ensure compliance and enforcement of environmental quality standards and these serves as threat to full implementation of the framework. Although Act 490 provides for a National Environment Fund with among others grants from government as

source of funding to protect the environment, government subvention is always late in coming and sometimes it is lower than budgeted for. This makes it difficult for EPA to carry out its programs adequately.

In addition, although act 490 makes provision for an Environmental Management Plan to be submitted by companies, poor monitoring and inspection routine by the EPA provides a negative cascading effect which result in among other things excellent written Environmental Management Plans that do not reflect actual practices by these companies. This has the potential of adversely affecting both environmental performance and quality.

Apart from the problems discussed above, there are logistical and other constraints that make the work of the EPA as chief government agency for implementing environmental policy difficult. For example there are several barriers to successful implementation of government agenda. As mentioned, lack of finances and inadequate capacity restricts monitoring and verification of environmental compliance by industries. Logistical problems such as inadequate vehicles and having to access vehicles from a pool for monitoring purposes also limits monitoring and inspection regime on the part of the EPA. Indeed this means monitoring and verification has to be suspended on occasions when vehicles are in use by others. Increasing human capacity through capacity building programmes and increasing government budgetary allocation is one sure way of improving the current problem.

Opportunities

Considering the afore mentioned threats and weaknesses, there is the need to take advantage of the opportunities that exist. This can be done both by government and individual firms. The EPA as a government agency, should encourage industries to voluntarily adopt other environmental standards such as EMS, Eco-labelling, Environmental accounting and Eco-Auditing as well as ethical and best management practice standards (Caux principle etc; see appendix 4D for example). Government should aim at providing incentives for companies to meet such standards. And industries should be willing to adopt such voluntary standard. A strategy that could be employed by Government is to encourage voluntary adoption of environmental management standards by tying award of government contracts only to firms that achieve a set environmental

standard or adopts a recommended voluntary standard. This could serve as a motivational factor for wholesale adoption. As Sullivan (2005) explains, 'global voluntary approaches for example, may help create International norms around specific issues and provide an enforcement mechanism (through company purchasing power and/ or wining government contracts when a company adopts such code) to ensure compliance with these norms' (Sullivan, 2005). Such voluntary standards will represent commitment by top management and reflections of core positions of the industries' environmental values. It also helps to promote environmental protection even in the absence of regulations. Further, opportunities exist to incorporate the time value of money into non-compliance fees or penalties to deter potential defaulters. In recent times, awarding 'penalty units' which takes into consideration the value of the penalty at the time the non-compliance offense was committed has been discussed by EPA officials (Onwona.Kwakye, personal communication). Alternatively, a basic financial model used by financial experts that calculates the future value of present money can be used when evaluating monetary penalty at any time. Mathematically, the future value of a cash flow stream with a Present Value of PV is given as $FV_n = PV \times (1+r)^n$, where PV is present value, FV_n is future value at time n, n is the time between the present and the future value date usually in years and r is the interest rate paid on equivalent investments (Berk and DeMarzo, 2007; p. 93). This therefore has the potential of solving the problems associated with the insignificance of the penalty as discussed earlier.

As mentioned earlier, weak institutional structures, capacity, logistical and financial problems continue to be threats to smooth implementation of environmental management framework in Ghana. Apart from the opportunities discussed, the incorporation of aspects of traditional rules and values into national legislation are further sources of opportunity that must be taken advantage of. Currently transposition into national law is poor. Ntiamoa-Baidu (1991) points out that the influence of western culture and western type education are eroding such traditional belief systems which from purely strategic perspective help to conserve resources at reduced costs. This is because enforcing traditional rules is done by the traditional authorities free of charge and as Ntiamoa-Baidu (1995) points out, traditional rules do not need monitoring and enforcement paid for by government money neither does it need big annual expenditure in terms of administrative

costs, personal emoluments, travel, protection and management costs. Thus taking advantage of the opportunities that traditional rules provide will counter some of the threats such as capacity and financing problems associated with smooth implementation of environmental management framework in the country. The need for legislations that recognise and reinforce aspects of cultural beliefs and traditional rules that are in line with modernism and conservation of environmental quality needs to be promoted. For example government could enact legislations that support traditional rules (by traditional authorities) of restricting access to an ecosystem and dumping of industrial chemicals into such water bodies since these contribute to environmental vitality. Corporations that respect such rules would be contributing to the corporate governance process. Indeed Ntiamoa-Baidu (1991) showed this contribution to environmental vitality in a study on contribution of traditional approaches in the conservation of coastal lagoons in Ghana. Using 2 lagoons- Sakumo and Djange in Ghana, Ntiamoa-Baidu (1991) showed that during the periods when traditional rules such as *close seasons, sacred days* and *taboos* were operative, the lagoon habitat was protected and prevented over exploitation of the lagoon resources. The author found out that because most of the traditional rules and regulations were no longer respected due to lack of modern legislation to reinforce traditional rules, it resulted in heavy fishing pressure which led to a reduction in the average size of the black cheeked tilapia (*Sarotherodon melanotheron*), the blue-legged lagoon swimming crab (*Callinectes latimanus*) and the mollusc *Tympanothonus fuscatus*. This together with the financial cost reduction to be gained underscores the need to take advantage of the opportunities that incorporating traditional values and rules into national environmental laws offer.

Finally, the EPA board should be empowered to exercise emergency powers in the event of non-compliance of environmental directives rather than concentrating power in the hands of the minister who is a political appointee.

Strengths	**Weaknesses**
• Broad framework for translating environmental and sustainable development policies into action at national level • Possess regulatory and enforcement powers compared to earlier legislations	• Arrogates a lot of power to the "minister" who is a political appointee rather than the EPA board • Monetary penalty insignificant and does not take into consideration loss in value with time • Poor inspection regime in the implementation process • Slow to making new laws and under utilising power to make new laws; eg no law concerning the electronic waste problem in Ghana
Opportunities	**Threats**
• Encourage voluntary adoption of environmental management codes such as EMS • Tie award of Govt contract to adoption of voluntary codes (recommended standard) by Industries • Effective communication of strategic financial benefits that accrue to industries on adopting voluntary codes • Improve monetary penalty system using financial model: $FV_n = PV\,x\,(1+r)^n$ • Introduce legislation to reinforce aspects of traditional rules which from strategic perspective help conserve environmental resources at reduced cost • Legislate in relation to managing externalities • Empower EPA board to exercise emergency powers in the event of non-compliance	• Inadequate implementation structures • Lack of capacity and financing difficulties to fully implement ACT 490 • Poor inspection and monitoring regime for compliance; often compromises environmental quality

Figure 5.1: SWOT analysis of Act 490 and its implementation process

5.5 Summary

In summary, in this chapter, the legal framework for environmental policy in Ghana has been assessed through a SWOT analysis. Strengths and constraints to the legal framework have been discussed. Weaknesses in the current legislation have been espoused and recommendations including strengthening the legal basis for environmental policy by adopting more public voluntary standards, enacting new laws and directives relating to recycling of plastics and electronic wastes and providing incentives to make voluntary approaches more 'binding' on Industry have been given. The next chapter dwells on a survey of environmental management practices in Ghanaian industries.

6 A survey of corporate environmental management practices in Ghana

6.1 Introduction

This present chapter and the next one focuses on empirical studies on corporate environmental management practices as well as industry level environmental performance by Ghanaian manufacturing companies based on data collected between September 2007 and March 2008 in Ghana. However because the data obtained was large, the author elects to present the data in two chapters. In this present chapter, emphasis is placed on common environmental practices as well as adverse practices of firms sampled for this study. The focus is also on environmental management practices of firms sampled. Several studies of survey on environmental management practices have been reported in the literature. For example, Leal et al., (2002) showed that effective management for example through adopting environmental management systems improves firms' competitiveness. Indeed as shown in chapter 4 of this thesis, EMS has arguably being an effective management system especially ISO 14001 EMS which is a system of procedures to monitor and measure an organisation's compliance with regulations i.e. its overall performance toward its environmental objectives and targets (International Standardisation Organisation, 1996). Porter et al., (1995) argued that environmental regulations can cause firms to be innovative and competitive leading to improved efforts at environmental management. Porter et al., (1995) further posited that 'properly designed environmental standards can trigger innovations that lower the total cost of a product or improve its value' (Porter et al., 1995). In the African context, Alemagi et al., (2005) using EMS adoption as proxy for environmental management practices sampled 156 industries on the coast of Cameroon to evaluate EMS adoption. Alemagi et al (2005) reported that out of the 17 (10%) of the 156 industries sampled having an EMS, only 18% were in the certification stage. These shows a low take up of environmental initiative in Cameroon. Earlier work by Mbohwa and Madzinga (2000) reports 16 (20%) of a total of 80 Zimbabwean industries surveyed has an EMS with 19% attaining the certification stage. Those 2 results are very much in agreement with each other. Indeed not many studies regarding such environmental management practices are known to be conducted within the African context. The present chapter of this thesis complements earlier studies that have been done on this subject.

6.2 Methodology

A detailed methodology has been presented in chapter 3. To emphasise the main points however, the questionnaire used for this part of the study had 4 parts dealing with general information, regulatory framework governing environmental management in Ghana, endeavours aimed at pollution control and resource conservation and finally environmental policy and planning issues (appendix 1). Most of the analysis in this chapter and the next were based on this same questionnaire. The questions dealing with this chapter were designed to elicit responses on whether the companies sampled had EMS or not, the type of environmental management practices they undertook as well as what they perceived to be adverse impacts of their activities on the environment. The findings are compared to those documented in the literature and then after discussed thoroughly.

6.3 Results and discussion

Respondent statistics

The valid return rate represents 60% of industries sampled. Of the 120 industries that responded, 15 were ISO 14001 certified and all were large sized industries representing 12.5% of the total industries that responded but 25% of large industries. The breakdown was as follows: 52 industries had some form of environmental policy, 30 were large companies, 16 medium and 6 were small sized companies.

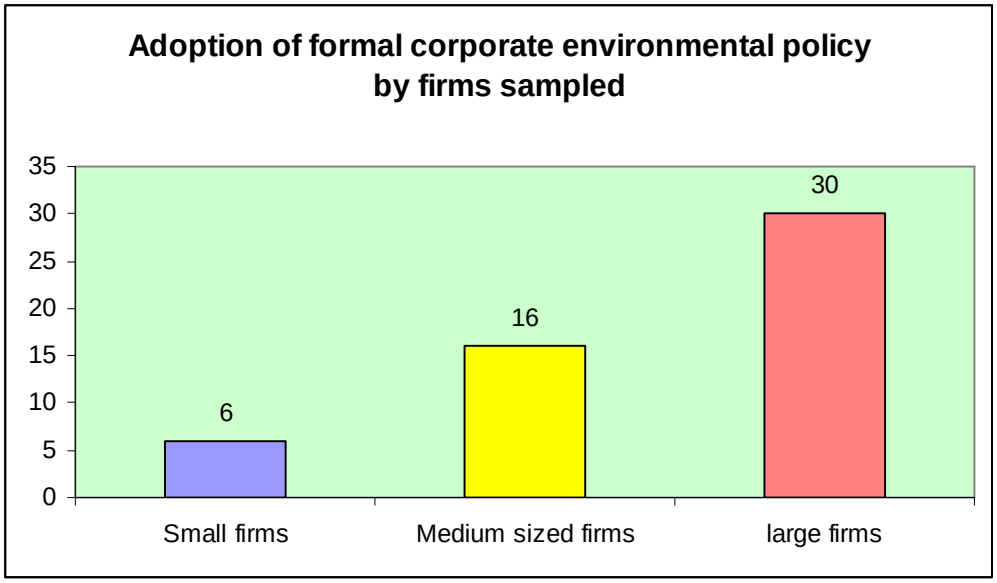

Figure 6.1: Formal environmental policy adoption by firms sampled

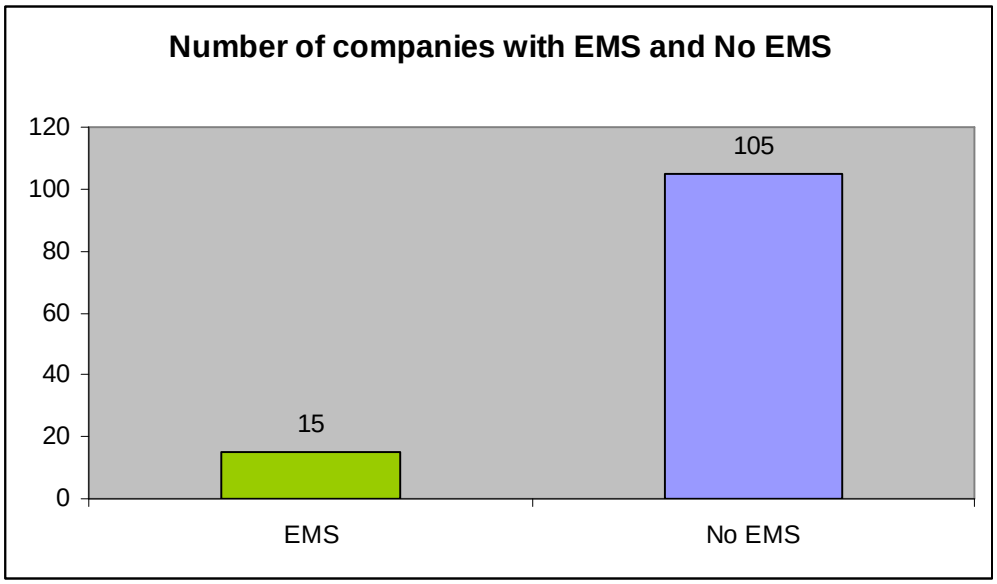

Figure 6.2: EMS adoption by companies sampled during the study

EMS adoption

Of the 15 companies with EMS, 12 had Environmental managers representing 10% of the total companies but 20% of large sized industries. The respondent statistics further revealed that all companies with Environmental managers had EMS; 3 companies with EMS had no environmental managers- but had Human Resources departments (HR) in

charge of environmental management. Clearly, this respondent statistics has implications for commitment to environmental policy and the subsequent translation into environmental performance. Companies with institutionalized environmental culture in their corporate structure enlist the services of environmental managers and this translates into adoption of EMS and subsequently results in improvements in environmental performance. The lack of EMS adoption by small sized companies may be related to inadequate budgetary allocations and this subsequently has implications for environmental management and performance. The results may also well imply that financial situation of these companies is not the only limiting factor to environmental performance. But recruiting environmental managers can influence management decision for the adoption of stringent environmental policy. External enforcement by way of recommendation by EPA can also achieve this feat.

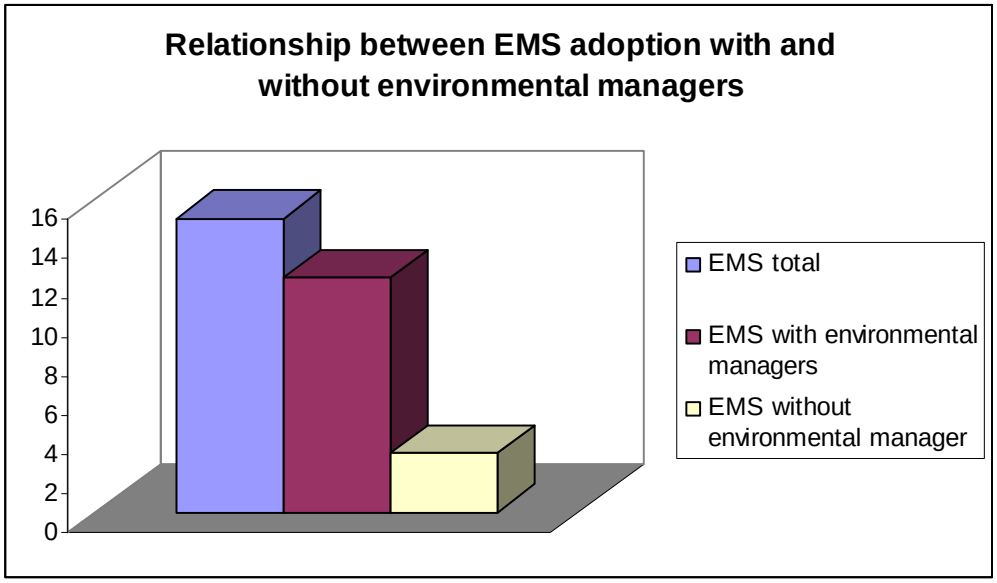

Figure 6.3: EMS adoption by firms with and without environmental managers

Common environmental management practices

Response to the questionnaire revealed several environmental management practices performed by respondent companies to varying degrees. Such practices included compliance with environmental regulation requirements, replacement of obsolete machinery with state of the art technology, controlling effluent emissions to meet EPA standards and recycling and re-use of process water. Other environmental management initiatives included setting environmental management objectives and targets, adhering to

companies' environmental code of conduct and policy and last but not the least, controlling operation and process of production work that has environmental implications.

In spite of such environmental management practices however, negative practices were also recorded in the responses given. For example practices such as incineration of paper waste, high energy consumption, hazardous waste emissions and poor plastic waste disposal were documented as some of the negative environmental practices encountered.

Discussion

Although there were adoption of positive environmental management practices in the industrial hub of Ghana studied, adoption of EMS was low and compared similarly with reports from Alemagi et al., (2005) and Mbowha and Madzinga (2000). Explanatory notes from respondents in this study showed that in some cases although there have been broad environmental policies, such policies have not been translated into management practices. For example, this is reflected in the sentiments expressed by one company that has adopted EMS this way: *"we can't compromise operation time for training"*. This indeed reflects the poor training associated with EMS adoption. As Goodpaster (2004) points out, more than visionary statements are needed to achieve sustainability or high environmental management practices. This thinking arises from the notion that efforts at environmental management and adoption of environmental management practices are time consuming and imposes a financial burden on companies. Hart and Ahuja (1996) however found that high polluters performed worse financially than low polluters thus challenging the notion that efforts at environmental management through EMS impose a financial burden. Similarly studies conducted recently indicate that most companies have perfected in their experimentation stage and have now become innovative in reducing cost and saving money in being environmental conscious oriented (White and Kiernan, 2004). Thus in the medium to long term, EMS adoption is a win-win situation. White and Kiernan (2004) maintain that companies which reduce their environmental risks and impacts are more sustainable, profitable, valuable and competitive. In a study of the value of good environmental governance from a business perspective, White and Kiernan (2004) found strong evidence for the existence of a positive relationship between environmental governance and financial (economic) performance. In 85% of the total

number of studies assessed, White and Kiernan (2004) found a positive correlation between environmental governance and/or events and financial performance. By way of recommendation, the authors encouraged the wider adoption of sound environmental policies and practices, leading to improved environmental and financial performance. The authors also called for integrating environmental strategies into overall business objectives.

Strachan et al., (2003) note that effective internal communication of environmental work is essential to gain the commitment of the work force and to ensure that all employees clearly understand their roles and responsibility within the EMS. This seems not to be the case for some of the companies sampled in this study. There is therefore the need to institutionalise good environmental management practice and culture in such industries. Chapter 9 provides strategies for doing this. As will be shown in the next chapter, although companies scored high on environmental management metrics, their limitations regarding environmental management lie more with managing externalities associated with their production. Earlier in this present chapter, common negative environmental management practices reported include plastic waste management. Companies are not obliged by law to take responsibility for such externalities. Infact most of the plastic waste pollution and poor disposal practices into streams and public lands stem from the view that such public goods do not have defined ownership. Economists argue that such issues external to industry cost arise when property rights are ill defined. This results in 'the tragedy of the commons', a situation where public goods or open access resource are polluted with impunity. To avert the tragedy of the commons, firms need to internalise their externalities. One way of doing this is for the government to tax businesses for environmental damage and to put in place legislation to regulate such activities. Environmental taxes are therefore a means of internalising environmental externalities. By increasing the costs of polluting activities, environmental taxes discourage unnecessary pollution and waste (Hunter et al., 2007).

6.4 Summary

This chapter has considered some positive environmental management practices by companies in Ghana. It has also documented some of the negative environmental practices by manufacturing industries in Ghana. It has been revealed that the uptake of

EMS as a management tool is low similar to what has been reported in other African countries. This low uptake of EMS calls for urgent intervention. Several options exist for intervention. Good ethical practices, use of cleaner technologies, as well as using economic tools and institutionalising environmental management culture in the organisation as discussed are means to entrench environmental management culture in Industry in Ghana. In addition, there is a need for a paradigm shift in the role of environmental management specialists. This is because most environmental management experts work with government environment agencies in Ghana. The need for industry to employ more of such people to design corporate environmental management programs in Ghana would facilitate improvements in environmental management. This need for industry's action is seen from the low level of environmental managers as depicted from the findings of this survey. Finally a participatory approach to environmental management that includes all workers and institutes an award schemes for ideas and practices consistent with good environmental values is envisaged to increase performance in environmental management in the manufacturing sector and indeed in industry in Ghana.

7 Corporate environmental performance: An empirical study of the manufacturing sector in Ghana

7.1 Introduction

In this chapter, an empirical study of corporate environmental performance in the manufacturing sector of Ghana is undertaken. The literature on environmental performance is replete with studies from the West. For example, Vasquez and Liston-Heyes (2008) examines whether corporate values towards the environment affect firms' environmental performance and found empirical evidence that there exists a strong link between a firm's discourse and its environmental performance. At the global level the Yale centre for environmental law and policy (2006) developed a framework for measuring Environmental Performance Indicators (EPI) at country levels. The EPI tracks national environmental results on a quantitative basis, measuring proximity to an established set of policy targets using the best data available (Yale centre for environmental law and policy, 2006). Stanwick and Stanwick (2000) established that a formal environmental policy with an explicit description of an organization's overall environmental commitment influences their environmental actions and hence performance. This observation is consistent with Belkaoui's (1976) who earlier used the disclosure of environmental information in the firm's annual report as proxy for environmental responsiveness. Thus the relationship between business firms and the biophysical environment has been studied and as Barnerjee (2002) notes, terms such as "ecological sustainability", corporate environmental commitment" and "ecocentric organizations" have been coined to describe these relationships. Environmental performance has however largely been measured through proxy measures such as environmental awards, environmental ratings provided by external agencies and through self reports (Barnerjee, 2002). However few studies have attempted to use quantifiable metrics to evaluate environmental performance. As Barnerjee (2002) notes, very little has been done to clarify, refine or measure the constructs that have been developed. A first step however in developing quantifiable metrics for environmental performance is a precise definition of the construct. Judge and Douglas (1998) defined environmental performance as "a firm's effectiveness in meeting and exceeding society's expectations with respect to concern for the natural environment" (p 245). However the focus in this

conceptualisation is only on external stakeholders (Barnerjee, 2002). Stakeholder theory on the other hand dictates that the stakeholder perspective of corporate environmental governance be translated into strategic actions desired to improve a firm's environmental performance. Thus a more accurate measure of environmental performance should reflect desires of both external stakeholders and internal stakeholders. As Shrivastava (1995) documented, there is the need for 2 sub themes of corporate environmental orientation. The first focuses on companies' internal values, standards of ethical behaviours and their commitment to environmental protection (Shrivastava, 1995). This subtheme highlights an environmental orientation that is internally focussed and often reflected by environmental mission statements that appear in firms' mission statements (Barnerjee, 2002). The second sub-theme reflects managers' perception of external stakeholders and the need to respond to stakeholder interests (Barnerjee, 2002). With respect to corporate environmental governance, White and Kiernan (2004) provided 5 sub-themes as embracing this concept. As mentioned in chapter 1, these sub-themes include: environmental values, environmental policy, environmental oversight, environmental processes and key performance indicators (including compliance). Thus in addition to Shrivastava's (1995) two sub-themes, a legal and regulatory framework is required to quantitatively assess corporate environmental performance.

As noted earlier, not many studies have attempted measuring corporate environmental performance through quantifiable metrics. However Barnajee (2002) provided a working definition of *corporate environmentalism* and developed an itemised scale for its measurement. However the measured construct was within the framework of corporate environmentalism which does not include legal and regulatory indicators in the itemised framework. There is therefore the need to integrate regulatory indicators into the current framework of corporate governance to evaluate corporate environmental performance in Ghana. In addition, the unique cultural setting and consequently environmental reporting and legislative requirements require a slightly different approach in terms of the main indicators to assess, in order to evaluate corporate environmental performance. In this chapter, 22 indicators (items) that reflect both industry and stakeholder interests were developed to measure corporate environmental performance.

In addition to the above and as noted, many of the studies cited above have been done in developed countries and there is little information regarding empirical studies of such nature in developing countries. Further, while these studies generally proposed frameworks for measuring environmental performance, there is not much evidence regarding quantitative measure of corporate environmental performance. Quantitative performance measurements are enormously valuable in fields such as economics, health care management, and education, where policies are driven by indicators such as unemployment rate and infant mortality (Yale centre for environmental law and policy, 2006). In the environmental field, policymakers have also begun to recognize the importance of data and analytically rigorous foundations for decision making (Yale centre for environmental law and policy, 2006). The need for carefully constructed metrics for pollution control and natural resource management is made more urgent by the United Nations' Millennium Development Goals (MDGs), which commit the nations of the world to progress on a range of critical development issues including specific targets for environmental sustainability (Yale centre for environmental law and policy, 2006). Amidst criticism that the environmental dimension of the MDGs had been insufficiently defined and inadequately measured, the Yale centre for environmental law and policy, (2006) responded to this need by developing 16 indicators that measure quantitatively environmental performance of individual countries. The benchmark standards used in this case were based on expert opinions and the environmental performance indexes were also evaluated by experts. However at the industry level, the need for constructed metrics for pollution control, achieving set environmental regulation standards and environmental planning and policy still remains unfilled. This present chapter attempts to fill this need by developing a model and quantifying environmental performance against a set of target objectives at the corporate level, based on the working definition proposed in chapter 1. Specifically, this chapter profiles environmental commitment by manufacturing industries in Ghana and how this influences performance. It also quantitatively assesses environmental performance of the manufacturing sector within a framework of corporate environmental governance. In addition it documents the existence of environmental policy by companies in the manufacturing sector and then measures how these translate into actual performance.

7.2 Methodology

A detailed methodology has been presented earlier in chapter 3. To summarize, the methodology involves administering questionnaires to manufacturing industries in the Accra-Tema area of Ghana (see map in chapter 3). This area constitutes the main industrial hub of Ghana which concentrates about 70% of Industries in the country. The questionnaires were designed based on a framework of corporate environmental governance (chapter 1) to appraise environmental performance in 3 broad areas- environmental planning and policy, pollution control and legal and regulatory framework. A Likert scale with scores ranging from 1-5 was developed and companies were asked to appraise their performances based on this scale. The scores were aggregated, averaged and analysed using Microsoft excel software. A model was developed and the resulting index, "CEPPI" was used to measure how different companies performed on the key corporate governance dimensions (see chapter 3 for mathematical analysis and derivation of the model underlying the CEPPI index) which measured environmental performance by these companies. The results were then analysed for all companies as well as for small, medium and large industries. The results are then discussed, conclusions drawn and recommendations made.

7.3 Results and discussion

Respondent statistics

As mentioned earlier, of the 200 questionnaires administered, 126 responded. Six of the questionnaires were rejected for inconsistencies in filling them. The valid return rate represents 60% of industries sampled. This was made up of 60 Large, 36 medium and 24 small companies.

Diversity and environmental performance of industries

The results showed that the sampled industries were varied and diverse. This included brewery, food and beverage, pharmaceutical, and many others as listed in the table shown below. Out of the 120 valid return rate, 10 were brewery companies (8%), 20 food and beverage (16%) and 18 pharmaceuticals. Other industries included in the list were paper and pulp, pipes and plastics and metal works.

Table 7.1: Average environmental Performance in 3 key areas of sampled industries on a maximum scale of 5

Industry	**No. Of firms**	**Sc. 1**	**Sc. 2**	**Sc. 3**	**CEPPI index**
Brewery	10	4.25	4.20	4.41	4.29
Food & Beverage	20	4.50	4.00	3.70	4.06
Pharmaceuticals	18	4.20	3.60	3.80	3.86
Chemical/Petrochemical	12	3.60	3.80	3.60	3.66
Paper & Pulp	17	4.50	2.80	3.52	3.60
Diverse manufacture	12	4.30	2.90	3.30	3.56
Pipes & Plastics	18	4.55	3.00	3.00	3.51
Metal works	13	3.30	2.90	3.47	3.17

Legend: Sc. 1= score on legal and environmental regulation compliance, Sc. 2 = score on environmental management (pollution control) and resource conservation initiative and Sc. 3 = score on corporate environmental planning and policy issues. CEPPI index is the average of Sc. 1, Sc. 2 and Sc 3.

In terms of environmental performance, the brewery companies achieved the highest. This was followed by food and beverage, followed closely by pharmaceuticals. Metal works scored lowest on the performance scale. It is worth noting that environmental management relates to quality standards. Likely because food and beverages are consumables, there is high quality standards associated with them. Hence most of these companies are likely to be certified for ISO 9001 which is a quality standard. This makes a transition to ISO 14001 which is an environmental management standard, easy since these companies already have experience with implementing an ISO international standard. This may explain the possibly high adoption of EMS ISO 14001 by these companies and hence the subsequent high environmental performance compared to other industries shown in the table. Further too breweries, food and pharmaceutical as well as chemical companies receive greater scrutiny from regulators since human health was directly involved and hence the high environmental performance shown by them. As noted by Barnerjee (2002), firms whose activities have high environmental impacts often integrate environmental concerns into their strategic considerations.

In addition, environmental performance by the breweries scored relatively higher than other ‘non-consumption’ industries. This is likely due to the fact that alcohol

consumption has an image problem among a cross section of Ghanaian society and as such, such companies do not want to further compromise that problem hence they give special attention to environmental issues thereby creating opportunities for their communities. This view is reflected in one such response from a brewery Industry. When asked "*what are the reasons for compliance/non-compliance of environmental regulations"* the company responded: "*To enhance company image, our people and the communities in which we work and live*".

Environmental performance metrics

Figures 7.1 to 7.7 show a general trend that most of the companies sampled scored high on a maximum achievable scale of 5. This is generally not surprising since the "CEPPI" index allows companies to self assess their own environmental performance. Further, although a lot was done to reduce errors due to social desirability bias, this could to some extent play a role in the high scores. As pointed out in chapter 1, it must again be noted that performance reflects the initiatives companies put into place to address environmental concerns and does not take into account the negative impacts associated with these industries' actions. It must also be noted that organizations whose environmental aspects have high negative impacts often integrate environmental concerns into their strategic considerations in order to reduce cost and avoid penalties associated with government enforcement of environmental standards. Most of the high environmental performers in this study fall within this category and these likely accounts for their high performance. This not withstanding, the environmental performance metrics are useful for internal comparison and individual companies could make use of such metrics to monitor their environmental performances. Further such performance metrics provide important feedback to initiate programs for continuous improvement. Additionally, the results as displayed in figures 7.1 to 7.7 provides information to make relative cross industry comparisons as well as comparisons based on firm size.

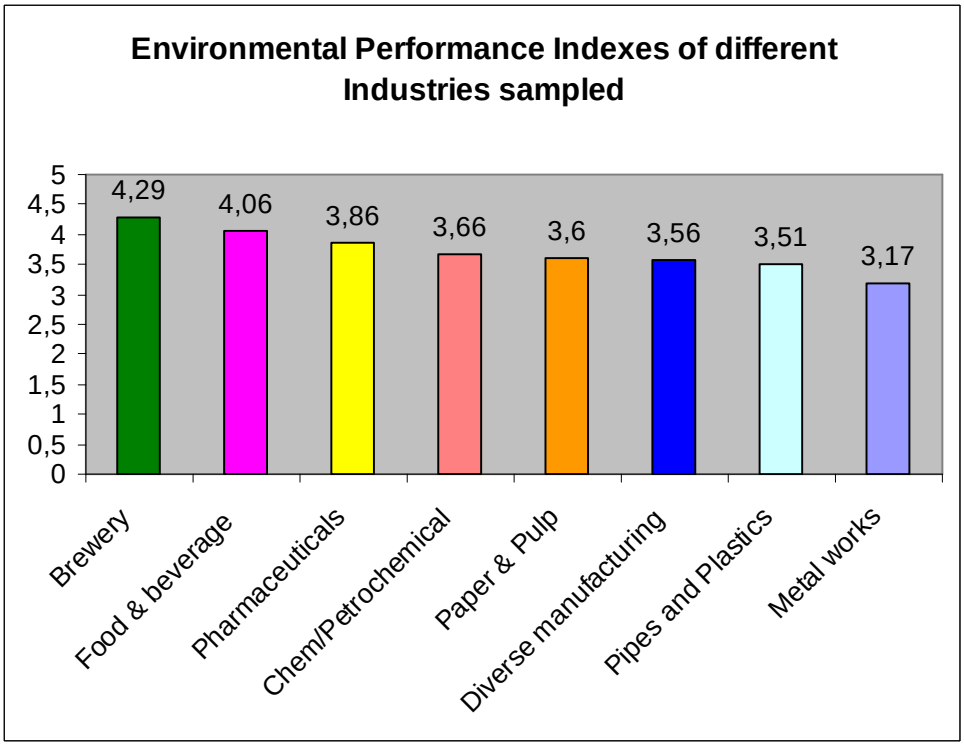

Figure 7.1: Environmental performance of industries sampled

Figure 7.1 depicts industry level environmental performance displayed graphically. The performance index ranged from 3.17 to 4.29, and the maximum achievable scale is 5. Figure 7.2 on the other hand, reveals how the various companies scored on the various indicators falling under environmental planning and policy initiatives. In relation to this, the average score of all the companies shows that they performed best at complying with "legal and regulatory policy". This was followed closely by adherence to companies' own environmental policy. In relative terms the industries sampled do not possess good emergency plan and do not react swift enough to environmental incidents (figure 7.2). This presents an important feedback and calls on these companies to improve their planning and policy aspects of their environmental endeavours as it relates especially to preparing emergency plan and reacting swiftly to work place and environmentally related accidents.

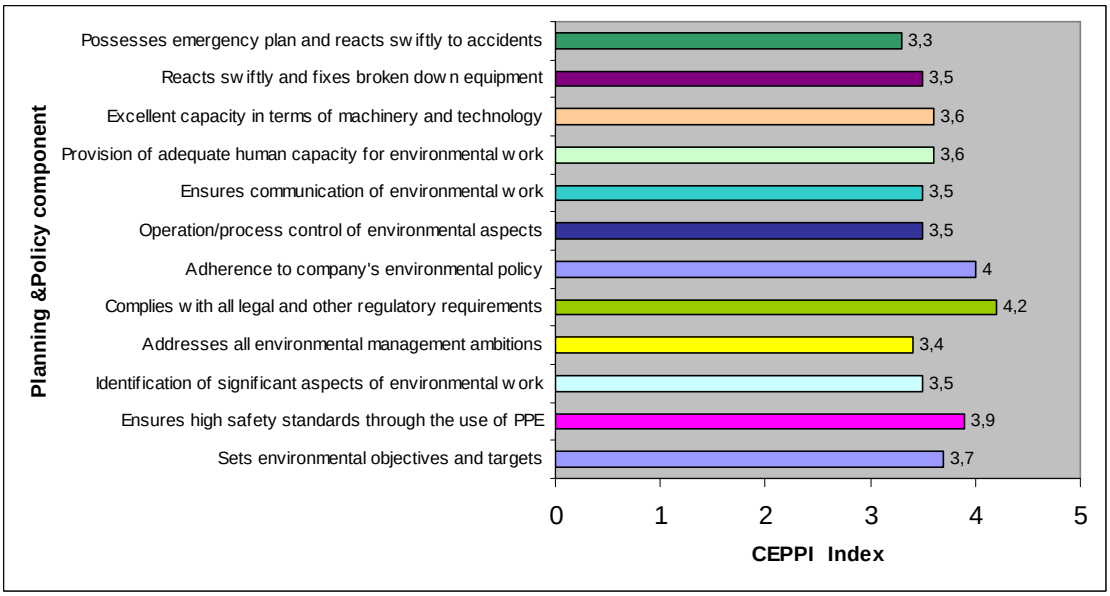

Figure 7.2: Mean scores of 120 companies on environmental planning and policy initiatives

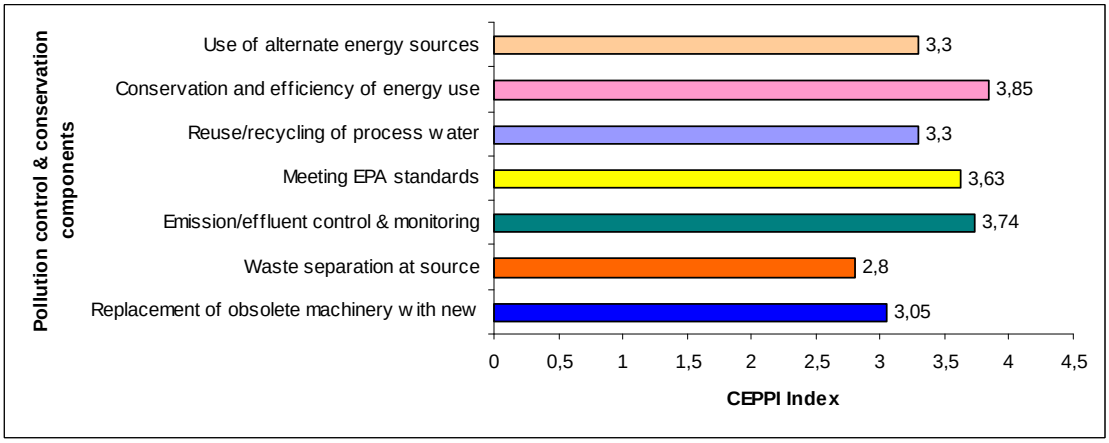

Figure 7.3: Average scores of 120 manufacturing companies on Pollution control and resource conservation initiatives

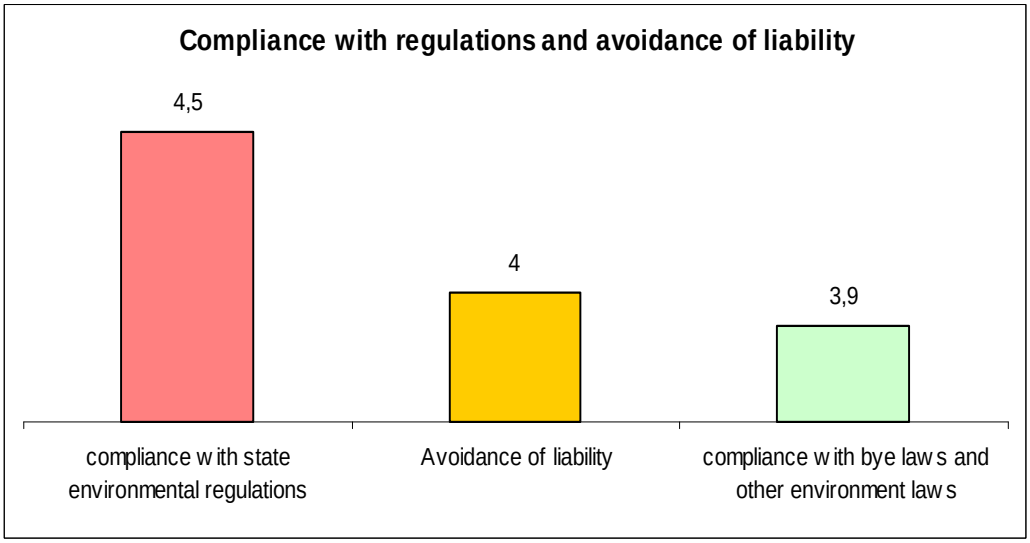

Figure 7.4: Performance of industries sampled on compliance with environmental regulations and avoidance of liabilities

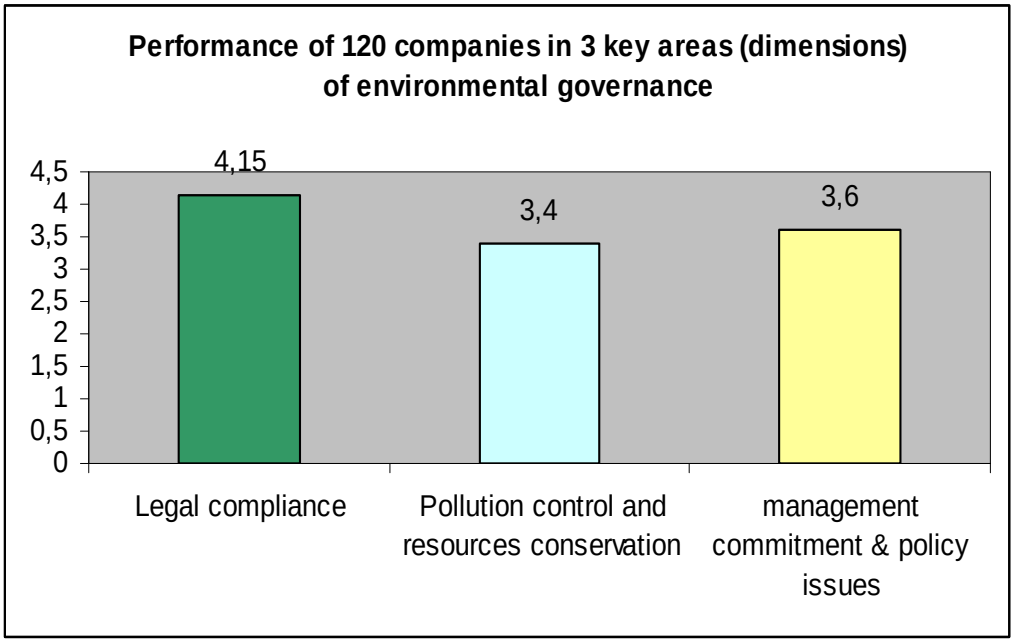

Figure 7.5: Environmental performance of sampled industries in the 3 main categories/areas of performance measured

Regarding pollution control and resource conservation initiatives undertaken by the industries sampled, the concept of separating waste at source was not a popular one (figure 7.3). Indeed this reflects the weaknesses in the legal framework. This is because although the industries sampled scored high on legal compliance, this was not reflected in pollution control and resource conservation initiatives. This reflects the principle that *"weak legal framework results in weak pollution control and resource conservation regimes"*. Indeed the result from the present study is in line with what is known of source separation of waste in Ghana. According to reports by the GNA, (2007) less than 2% of plastic waste for example is recycled in Ghana. This is a consequence of poor waste separation practices as observed in this present study. Further, from the results, figure 7.4 reveals that the industries sampled showed strong compliance with government environmental regulations. However they responded relatively weakly to complying with traditional rules, by-laws and other environmental regulations. This is likely due to the fact that the companies did not feel obliged to comply with by-laws since compared to state regulatory requirements regarding environmental protection, traditional rules and by-laws have not been strictly enforced. As a strategy, this calls for strengthening state environmental laws and enforcing them since companies seem more likely to comply with such government laws.

Again figure 7.5 above shows that although companies scored higher on legal compliance with environmental regulations, they do not meet key environmental goals (legal compliance scored 4.15 compared to pollution control and resource conservation initiatives which scored 3.4). This may well imply that regulations are inadequate and do not translate into pollution control and resource conservation initiatives. It also means that although the sampled industries do well in meeting their environmental objectives as required by law, they however fall short in pollution control measures that require voluntary commitments. Further, management commitment and policy issues scored higher than pollution control and resources conservation initiatives. This also implies corporate policy issues are not being translated well into pollution control and resource conservation measures. This observation agrees with Goodpaster's (2004) point that it needs more than visionary statements for corporations to meet all their social and environmental obligations. Thus there is the need for instituting environmental

management culture in Ghanaian industries- one that makes it possible to translate corporate environmental objectives into tangible performance results. Chapter 9 discusses a broad range of strategies to addressing constraints to environmental management within the corporate perspective in Ghana.

Comparison of environmental performance: Small, medium and large enterprises

The results thus far show a peculiar and consistent distinction between environmental performance of the large industries and those of SMEs. It is worthwhile therefore to have a comparative discussion on the environmental performances of SMEs and large industries.

There is no one agreed definition for SMEs. Anon. (2007) suggests firms having more than 20 employees and less than 500 could be considered as such since such a definition ensures a minimum of activities related to environmental management. Sexton et al., (1999) designates companies with 75 employees as small. Hussey and Eagan (2007) define SMEs as manufacturers employing 500 or fewer people. Globally such industries represent 70-98% of manufacturing population and creating 70% of the global environment impacts (Hillary, 2000). Thus there is no clear definition of SMEs from the literature. In this study, companies were asked to designate themselves as small, medium or large based on existing national standards. The responses showed that companies with up to 100 employees classified themselves as small, between 100 and 500 as medium and over 500 as large enterprises.

Figure 7.6 shows that large enterprises performed better in their environmental endeavours than medium and small enterprises in decreasing order. Large firms have size advantage and usually with high financial assets. From this study, one other reason why SMEs fail to perform in their environmental endeavours compared to medium and large enterprises is due to the degree to which the environmental aspects of their work are being monitored by EPA. An assessment of how often their activities were being regulated shows that SMEs are less often regulated compared to large enterprises (scored a low regulative index of 3.0, medium companies scored 3.83 and large companies scored 4.3 meaning large companies are more often monitored; figure 7.7). This agrees with Sexton et als., (1999) observation. This may be because of the perception that small companies do not pollute much. However they make up a significant part of all

companies in Ghana and collectively have a significant environmental impact. Increasing performance verification of small firms on the part of government agency can contribute a lot towards improving the mandatory environmental performance of small firms in Ghana.

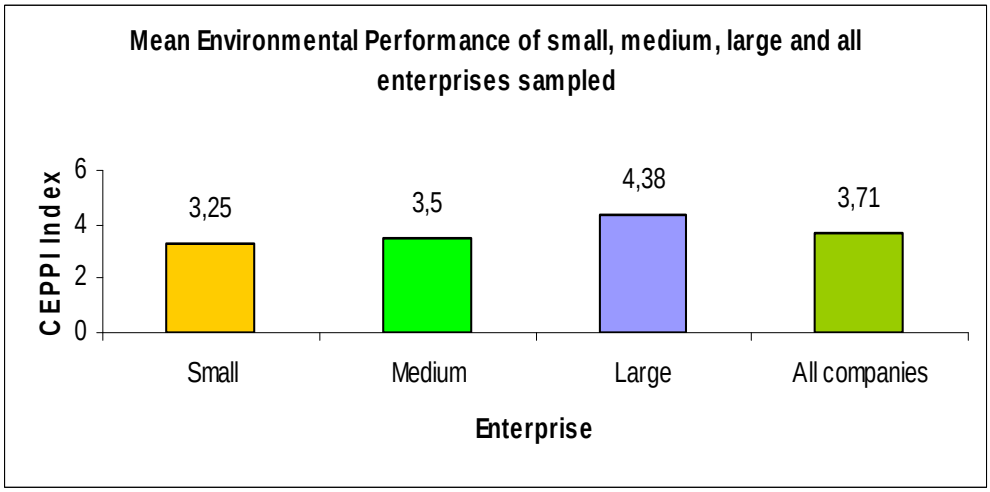

Figure 7.6: Comparison of environmental performance by SMEs and large enterprises

Legend: Based on a sample size of 24 for small manufacturing firms, 36 for medium firms and 60 for large sized enterprises.

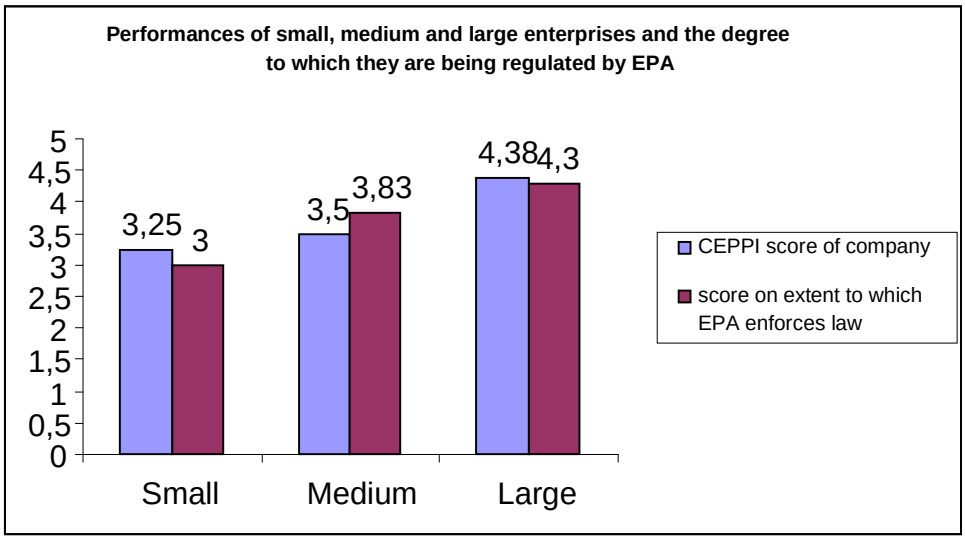

Figure 7.7: Relationship between verification and monitoring and environmental performance of small, medium and large industries

7.4 Discussion with special focus on SMEs

Figure 7.6 points to the fact that firm size is the major determinant of environmental performance in the industries sampled. In figure 7.1, breweries and food and beverage companies which are large industries, scored high on environmental performance compared to others. Again, figure 7.6 shows that large companies as a whole performed better in their environmental endeavours compared to SMEs. The obvious question is why SMEs perform relatively poorly? Discovery of the underpinning reason is an important requisite to designing strategies to improve performance by especially SMEs. Globally SMEs make up 70 to 98% of industries (Hillary, 2000) and hence improvement in their environmental performance should improve both the local and global environmental quality. In this study, one reason advanced for the relatively low environmental performance of the SMEs is that they are being under monitored by state regulatory agencies. This is shown in figure 7.7. Other researchers have suggested that SMEs lack the financial capabilities to undertake costly environmentally related projects such as adoption of ISO 14001 EMS (Alemagi, 2006). Yet others have suggested lack of knowledge and capacity as holding back SMEs from excelling in their environmental performance (Alemagi, 2006). Roy and Thérin (2008) carried out empirical study that shows a positive correlation between a firm's knowledge acquisition activities and its environmental commitment. Since SMEs generally do not have trained managers compared to large enterprises, this may in a way affect their knowledge acquisition and adoption of standards that protect the environment and increase their environmental performance. Indeed in this thesis, it was realised that greater portion of companies that have adopted EMS and possess environmental managers for example are large companies and showed relatively high environmental performance (chapter 6). Thus one could see the connectivity between SMEs knowledge base and environmental performance. This finding has an important implication and may well imply that improving knowledge acquisition by SMEs through trade associations, suppliers and other stakeholders for example may be helpful in improving their environmental performance. In connection to this, the EPA in Ghana could serve as a conduit in providing companies especially local ones with trends in environmental management. This they can do through subscription of trade books related to environmental technologies as well as consultancy advice on

environmental improvements. Stanwick and Stanwick (2000) found that firms' organisational culture also influences their environmental responsiveness. In this regard, instituting a board knowledgeable in environmental matters could be helpful for such SMEs to meet both mandatory environmental requirements as well as voluntary environmental requirements. Indeed Alemagi (2006) cited earlier, carried out a survey of EMS initiative on the coast of Cameroon. The author reports 10% uptake by 256 major industries surveyed. Further the author reports that almost all industries that did not have EMS, mostly SME's had little or no knowledge of EMS. Alemagi (2006) further observed that in the particular case of EMS uptake, SME's performed low and no SME's took up EMS in his survey. All industries taking up EMS were chemical industries and other big industries and the reasons assigned for non-EMS uptake by SME's included:

- Lack of qualified personnel
- Lack of knowledge regarding environmental management issues
- Lack of finance for the costs associated with EMS

These points are consistent with the general observations made from the present study. It must be emphasised that SMEs in Ghana are mostly family based businesses with relatively small capital investments. Further, SMEs executives lack academic sophistications associated with large industries and TNCs as posited earlier. To change the situation for SME's there is the need for fostering of partnership mediated by EPA with Universities for 'summer' training programs and 'new year' school training programs to equip SME's with awareness on environmental issues. This has the potential of making SME's embrace such new management concepts and progress towards environmental sustainability. This will serve as a basis for SMEs to meet contemporary environmental challenges and improve their environmental performance.

7.5 Summary

This chapter has focused on empirical study measuring quantifiable metrics for industry level environmental performance in Ghana. A model was developed for measuring these metrics (reported in the methodology section, chapter 3). The brewery, food & beverage and pharmaceutical companies showed high environmental performance. All these high performers are large industries. Small and medium sized enterprises performed relatively low. The findings in this chapter further suggest a relationship between firm size and environmental performance.

The chapter further reveals that the underpinning reasons why SMEs perform relatively poor relates to their knowledge base in environmental matters, their financial position as well as the degree to which they are being monitored by state environmental agencies. Indeed this last finding is especially revealing. Since SMEs make up 70 to 98% of all industries globally (Hillary, 2000) and at least 50% (based on the sample in this study) of industries in Ghana, there is the need to pay special attention to the SMEs by increasing performance verification by the EPA and other government agencies to help them improve their environmental performance and hence environmental quality. This evidently is a likely factor to provoke a favourable commitment towards the environment. Thus the perception that small companies do not pollute much does not hold since collectively their adverse environmental impact could be great. It must be stated that other measures to help SMEs improve their environmental stewardship is addressed in Chapter 9.

It must be noted that the environmental performance indexes provided in this chapter provide a self-assessment tool that can enable firms to set benchmarks. As Barnerjee (2002) points out, such evaluation method "goes beyond technical environmental solutions that are the basis of most environmental management programs. These technical programs, important as they are, have a much narrower set of environmental objectives". It must be emphasized also that such quantifiable metrics do not define the "greenness" of an industry. The "greenness" of an industry can only be determined by the net environmental performance which represents an environmental benefit-cost analysis as shown in chapter 1. The development of the "CEPPI" index focused only on the "benefits" side. The "CEPPI" indexes thus provide a diagnostic tool to examine the

degree to which environmental issues have been integrated in different industries. The next chapter focuses on corporate environmental responsiveness using the mining sector in Ghana as a case study.

8. Corporate social and environmental responsibility: Analysis of the mining industry

8.1 Introduction

DuBrin (2007) defines corporate social responsibility as *"having obligations to society beyond the company's economic obligations to owners or stockholders and also beyond those prescribed by law or contracts"*. Earlier, Davis (1973) cited in Marquis et al., (2007) defined corporate social responsibility as *"firms' consideration of, and response to, issues beyond the narrow economic, technical, and legal requirements of the firm to accomplish social benefits along with traditional economic gains which the firm seeks"*. To be socially responsible includes leader awareness of how their actions influence the environment (DuBrin, 2007) and is an indication of showing good environmental governance initiatives. Rae and Rouse (2001) noted that public opinion regarding the mineral extraction industry is poor and is influenced more by concerns regarding environmental and social performance than in performance in areas such as product pricing, quality and safety. Corporate Social Responsibility (CSR) is thus a helpful conceptual framework for exploring the corporate attitude of companies towards stakeholders (Obara and Jenkins, 2006). It is therefore of value to investigate CSR practices and drivers for the mining Industry. Corporate responsibility has thus become a buzzword in the business world with several articles written about the subject. On the one hand, the concept has been praised as showing ethical leadership on the part of business. On the other hand, some have criticised companies for using corporate responsibility catchwords as advertising gimmick to boost their sales without really extending help to local communities where they operate, especially in developing countries. However few studies have looked at what motivates or influences corporate support of social and environmental initiatives. Also few studies have looked at how pronouncements of corporate environmental responsibilities translate into practice. In other words whether there are differences in corporate responsibility as '*preached'* by mining companies and as '*perceived'* by the communities. In this chapter, the author investigates the common environmental impacts associated with mining activities in Ghana, then corporate responsibility is analysed from the perspective of what influences companies to act socially responsible and also what triggers such actions. The author further evaluates this

from the perspective of local communities where such mining companies are located in Ghana and provides strategies mining companies and local communities should adopt to maximise environmental benefits for their communities. Further upon analysis, the author weighs in on the extent of corporate environmental governance practice by the mining companies, then discusses the implications of the findings and make recommendations for environmental improvements by the mining companies.

8.2 A brief background to mining in Ghana

Mining accounts for 5% of the country's GDP and minerals make up 37% of total exports. Of these, gold contributes over 90% of the total mineral exports. Thus, the main focus of Ghana's mining and minerals development industry remains focused on gold. Ghana is Africa's 2nd largest gold producer, producing 70 t in 2003. Production is dominated by home grown Ashanti Gold Fields, which produced nearly half at 37 t from its five mining operations (http://www.mbendi.co.za/indy/ming/af/gh/p0005.htm). Other mining companies in Ghana include Newmont Ghana Ltd and Anglo-Gold Ghana. Ghana is also a major producer of bauxite, manganese and diamonds. There are at least thirteen large-scale mining companies producing gold, diamonds, bauxite and manganese, and, there are also over three hundred registered small scale mining groups and ninety mine support service companies. The ownership structure of the mining industry is mixed, but foreign companies control an average of about 70% shares in these mines. The dominant players are mainly companies from Canada, Australia and South Africa, but there are also investments from United States, United Kingdom, Norway and China (World Rainforest Movement, 2004; Akabzaa and Darimani, 2001).

The basic law governing mining in Ghana is the Mining and Minerals Law which was passed in 1986 (PNDC Law 153). This and associated legislation combines regulation of the mining industry with fiscal incentives for investors (http://www.mbendi.co.za/indy/ming/af/gh/p0005.htm).

Although mining contributes 5% to the country’s GDP, there are negative environmental impacts associated with it. Such impacts come not only from large mining companies but small scale miners as well (Hilson, 2002). Impact associated with small scale mining includes mercury pollution and land degradation (Hilson, 2002). Large scale mining has

been a major source of deforestation and forest degradation. According to the World Rainforst Movement (2004), the removal of the forest cover is rapidly drying up rivers and streams, leading to the extinction of river hosted animal and plant species. Protected species such as the Red River hog, the roan antelope, the red Colobus monkey and the black Colobus monkeys are some of the species associated with tropical rainforest (Akabzaa and Darimani, 2001). At the community level, the threat to ecological biodiversity has economic implications: increased mining activities in the area have partly led to the reduction or extinction of certain flora and fauna species that the communities depend on. Many communities complain that snails, mushrooms, medicinal plants, etc. are no longer available in the area due partly to mining activities (Akabzaa and Darimani, 2001). Most mining activities in Ghana are restricted to the Ashanti and Western regions. The map below shows Ghana's mineral deposits.

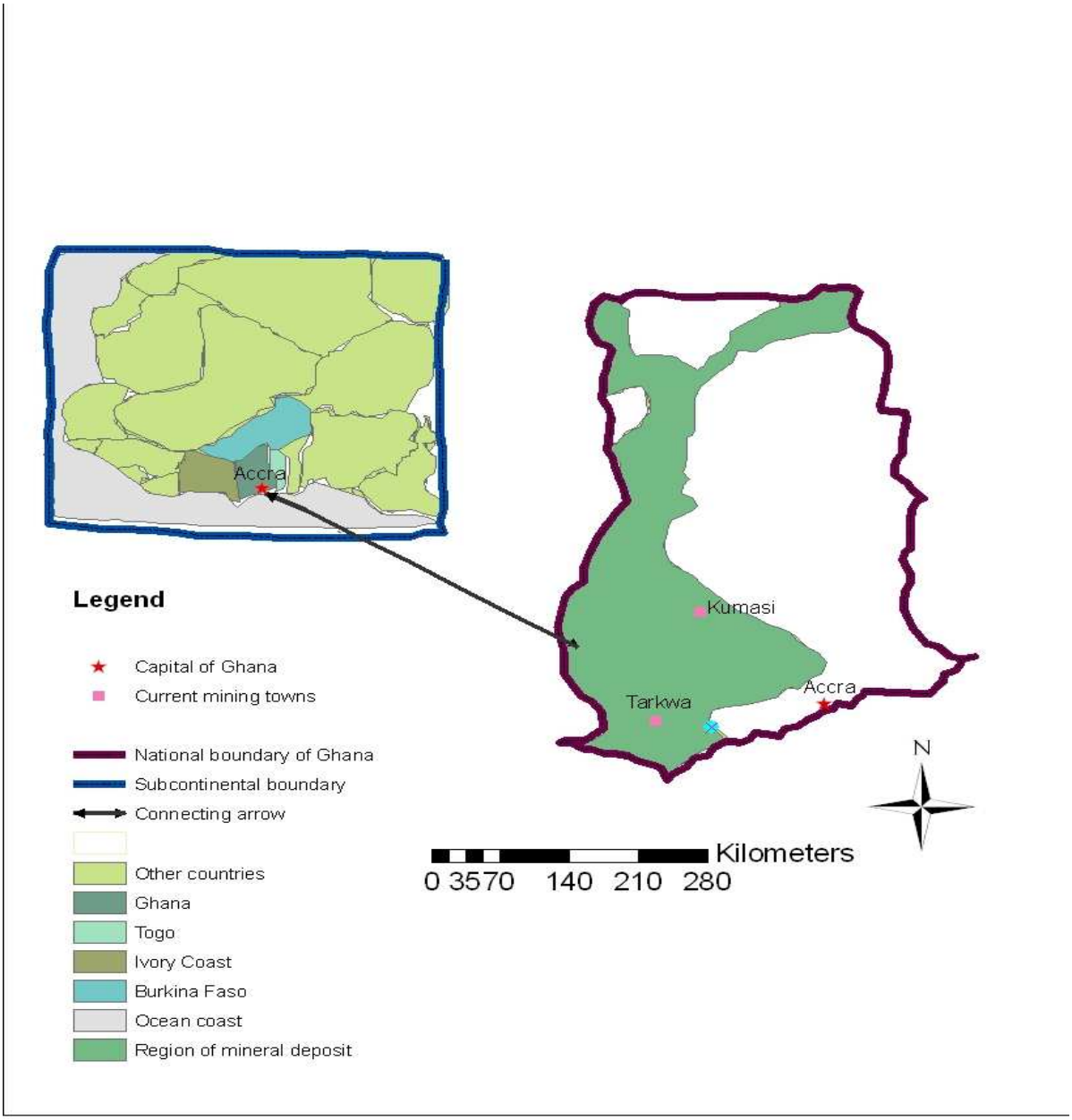

Figure 8.1: Map of Ghana's current and prospective gold mining areas (source: Obara and Jenkins, 2006)

8.3 Theoretical foundation

In this section, the author looks briefly at the legal and social philosophical concepts underpinning corporate social responsibility and also reviews a theory constructed on what motivates corporate social responsibility (Marquis et al., 2007). As discussed in chapter 2, most of the ethical concepts in environmental management stem from

international environmental law. The concept of environmental responsibility stems from the fact that ungoverned corporate and industrial activities naturally pollutes and degrades the environment, reduces biodiversity and depletes stocks of natural resources. Principle 1 of the 1992 Rio Declaration (UN Conference on Environment and Development, 1992) proclaims that:

"Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature".

Specifically Principle 22 states that –

"Indigenous people and their communities, and other local communities have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognize and duly support their identity, culture and interest and enable their effective participation in the achievement of sustainable development".

Hence the philosophy of corporate responsibility was embedded in a strong legal foundation. In 1995, the Ecumenical Committee for Corporate Responsibility (ECCR) launched a set of principles which recommends to corporate bodies to pay particular attention to the ecosystem or the environment where business is done, the national communities where business is done, the local communities as well as to the employees and all suppliers. Hence corporate responsibility as a concept is an integral part of a stake holder approach to corporate management (ECCR, 1995). The principles of corporate social responsibility demands that a company deriving utility from a community should respond positively to the problems of that community. In this chapter CSR, environmental responsibility and corporate social action have been used loosely and interchangeably to describe similar related issues. In spite of the socio-legal foundation to corporate social responsibility, in practice what motivate such social responsibility? An understanding of this can help improve benefits local communities derive and also increase responsibilities extended by the mining companies.

In a landmark paper Marquis et al., (2007) addressed the issue regarding what factors influence corporate social actions. Marquis et al., (2007) theorized that strong

institutional forces operating in a community such as the existence of environmental foundations, NGOs and other environmental institutions as well as community associations shape the nature and level of corporate social action. *Nature* here refers to the focus of corporate philanthropy and *level* refers to the quantity or amount of corporate philanthropy. Hence in the context of environmental responsibility it may well refer to the focus and level of environmental action respectively. Based on huge data set collected, Marquis et al., (2007) theorised using the model shown in figure 8.2 that the *nature* and *level* of corporate social *responsibility* are affected by communities. While community norms, beliefs and values affect the *nature* of corporate social action, regulative forces within the community in terms of local political leadership, existing enforceable by-laws and other regulations affect the level of corporate social action (Marquis et al., 2007). In simply terms, corporations carry out more social action when institutional pressures such as community associations exist to influence or mould their corporate social action.

Drawing on earlier work by Kanter (1997) and Guthrie (2003), and primary data involving interviews with more than 50 people, Marquis et al., (2007) argued that CSR is a resultant of 3 forces- what government is encouraging, what local peers are doing and what corporations believe to be right.

A study in Miami, Boston, and Cleveland in the USA showed that locally headquartered companies contributed to their communities considerably more than non local companies and were much more involved in civic leadership at the local level (Kanter, 1997). Guthrie (2003) and also Guthrie and McQuarrie (2005) also reported that corporate social responsibility significantly differ by firms on *how* and *where* corporate philanthropy is focussed. Guthrie (2003) found that 91% of companies reported strong to moderate local norms for philanthropic activities. Guthrie (2003), further on a study conducted involving CSR behaviour of 2,776 US firms across 50 cities reported that 77% of CSR across communities stayed within the headquarters' community and that 80% of corporations claim that their largest single donations was within their community. Thus corporate action is seen to be more in local communities where corporations have their headquarters. This is because top corporate decision makers are usually domiciled in regions where their companies have their headquarters and the social pressures brought to

bear on them as well as their own inclinations cause them to be more corporate socially responsible (Marquis et al., 2007) This finding has implications for local communities where TNCs operate and require a different strategy by government, communities and TNCs on how to maximise benefit from environmental responsibility. In view of the above review of the literature on both the socio-legal foundations of CSR in industry as well as review of the theory of corporate social action, which from inspection and review of the literature is the most comprehensive theory constructed on the subject, I situate my findings of the present study to this theory by testing aspects of its propositions in the Ghanaian context.

Cultural cognitive

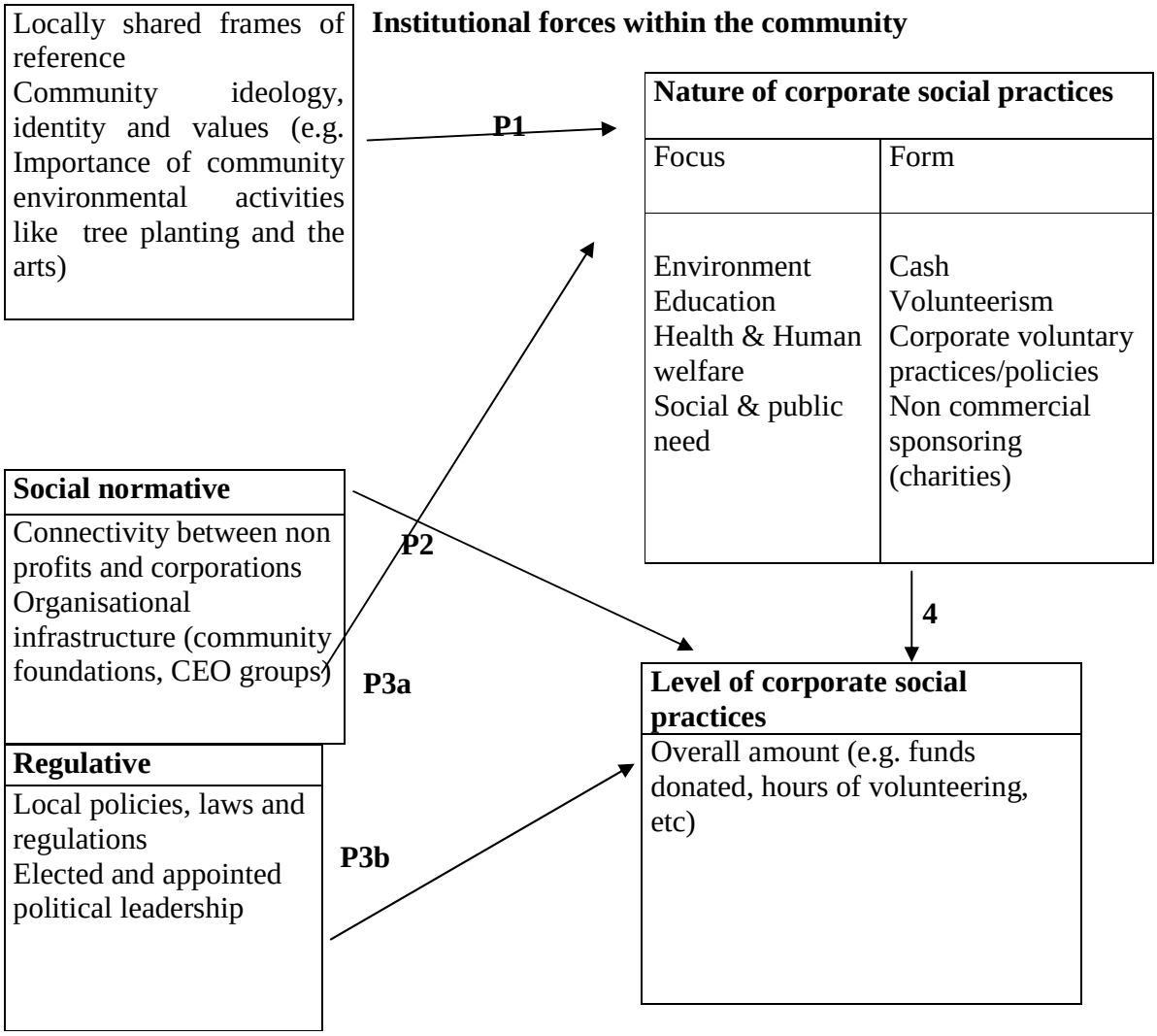

Figure 8.2: Corporate social and environmental responsiveness depends on a complex web of interaction of institutional forces operating where the Industry operates (adapted from Marquis et al., 2007)

8.4 Research questions

1) What are the environmental and social impacts associated with mining in the study area?

2) What CSR and ER initiatives are being undertaken by the mining companies?

3) Are there differences in what companies *preach* and what communities *perceive* to be CSR?

4) Does presence/absence of community associations and other institutions influence the nature and level of CSR?

5) As it relates particularly to the environment does presence of environmental NGO's and power figures advocating for environmental protection influence the degree to which companies take on environmental responsibility initiatives?

6) To what extent do communities initiate environmental protection efforts and to what extent does that translate into support from the mining companies?

9) What motivate industry environmental action and CSR?

Findings are situated with theoretical concepts as propounded by Marquis et al., (2007), as well as what is reported in the literature. A strategy is then fashioned out to help maximise environmental benefits to the communities in the mining areas.

8.5 Methodology

Chapter 3 provides a detailed methodology used in this thesis. In this present chapter however, the methodology involves the use of primary and secondary data. Primary data was collected on environmental impacts of mining activities, perception of communities on environmental and CSR initiatives by the mining companies as well as on the institutional forces at play in the mining communities (appendix 3). This was done by interviewing 2 corporate responsibility officers employed by the mining companies. Secondary data was acquired from existing literature on the subject. The data is then analysed qualitatively.

8.6 Findings and discussion

Mining impacts on the environment and communities

The findings from field experts and CSR officers for the mining companies reveal that common impact of mining in the mining regions include both social and environmental. These include:

- Loss of livelihoods
- Environmental impacts (loss of vegetation cover, dust pollution, effects of blasting)
- Economic impacts(expansion of the local economy)
- Social impacts(increase in divorce rate, reduced influence of traditional authorities)
- Illegal mining
- Influx of migrants
- Increase in crime rate

These findings agree with what is reported in the literature. For example Akabzaa and Darimani (2001) and also the African Rainforest Movement (2004) reported similar impacts. With regards to what mining companies do in responding to such impacts, the study, from the perspectives of the mining companies reveal that companies do the following:

- Initiate livelihood restoration projects
- Implement land and general environmental impact mitigation plans such as land reclamation/restoration plans, regular monitoring of blasting levels, watering of feeder roads to prevent dust pollution etc
- Initiate community development projects
- Provision of residential accommodation to mining employees to mitigate impact of migrant influx
- Provide mechanized water systems
- Continually engage police and traditional leaders to combat illegal mining

However this revelation is at variance with what members of the community think. In a speech given by one Nana Asiamah Guahyia Ababio on behalf of a traditional council in Ghana (speech reported in National Mining conference, 2004) he points out that *"a careful study of the implementation of the concept of corporate social responsibility of companies in Ghana has not shown a uniform pattern"*. He further posits that the mining communities have not seen much of the proposals and guidelines with regard to CSR implementation translated into practice. The evidence thus seems to point to the fact that there is a gap between what the companies 'preach' as CSR and what the communities gain as CSR indicating that these have been poorly translated in practice. Similar sentiments were echoed by the members of the community interacted with during the study.

Apart from meeting obligations imposed by law, the study further reveals that mining companies support other social activities such as undertake community outreach and sensitization program as well as community self help projects and benefit programs such as capacity building for local groups and associations including microfinance, water and sanitation management. In addition to these social responsibility initiatives, payment of royalties and creating employment opportunities for local communities as well as monetary offers to the communities for livelihood restoration programs and development and infrastructural projects have also been carried out by the mining companies.

However inspite of such initiatives, there was not enough evidence to suggest more environmental oriented initiatives such as tree planting and habitat restoration projects

were undertaken in the mining regions. Indeed some community leaders were of the view that the cost of mining far outweighs the benefits and thus the country should not pursue mining as a path for development.

A close analysis of the forces that shape corporate responsibility would reveal that the mining companies preferred providing social assistance to well organized institutions in the mining regions. An analysis of secondary data supports this position. For example one community leader had lamented:

"we observed that huge sums of money were being donated to some INSTITUTIONS outside the Adansi Traditional area, whereas the local people cried in vain for support in undertaking basic projects such as boreholes/wells feeder roads and school building" (National mining conference, 2004).

This assertion adds credence to the theory that companies are influenced by institutional forces available in communities where they operate (Marquis et al., 2007) rather than in dealing with individual cases in supporting environmental responsibility issues. As Campbell (2003) and Hilson and Haselip (2004) explained, the piecemeal nature of the regulations, laissez faire investment policies, and adhoc monitoring systems in place in developing countries including Ghana raise the question of how committed mining companies are to sustainable development. This confirms the theory that institutional forces such as regulatory forces (including monitoring enforcement) and community foundations could serve as catalyst in making mining firms increase their levels of environmental responsibility.

Further, analysis of secondary data reveals that where influential or 'power' figures such as chiefs and community leaders have been used to endorse and promote an environmental agenda, the communities have benefited immensely in terms of donations towards environmental causes. In Ghana, the Okyehene, a prominent and influential traditional leader has had immense support for his Environmental Foundation. Thus, although it is incumbent on the mining companies to lead environmental initiatives considering the social and legal philosophical considerations underpinning CSR, analysis of the literature suggests that with the right institutional and regulatory forces existing, the role by the mining companies could be enhanced. The evidence therefore seems to

confirm the theory that the nature of the regulative institutional environment might influence the focus of corporate social responsibility (Marquis et al., 2007).

8.7 Implication of study

This study shows that when local institutional structures are weak, communities tend to suffer more from the consequences of pollution and inadequate environmental responsibility from the mining companies. The need to enhance the institutional character of communities where mining industries are located becomes paramount. Clearly, communities need to understand aspects of the 'corporate psychology' and act accordingly. It is clear from review of Marquis et al's (2007) work as well as evidence from the present study that companies support socially responsible activities as a result of social and governmental forces in local communities influencing corporate decision making in the social sphere. This is more obvious especially in the case of Trans National Companies. In line with institutional theory that institutions are the "properties" of geographical regions where they are headquartered (Scott, 2001) and that they tend to support their own communities, the implication here is that since most mining companies in Ghana are Trans National Corporations, they won't naturally increase their CSR support for the local communities where they operate unless the right institutional and regulative values and forces are created in the communities where they operate. This view is however a hypothesis that needs to be thoroughly tested. On the other hand, it may well imply that improving corporate environmental governance through CSR is a shared responsibility; the mining companies would continue to do what they perceive to be right. However community associations and institutions should also play a positive role in order to enjoy these social and environmental benefits.

The assessment of CSR initiatives in the mining region is that although mining companies support some forms of social activities, not much is seen in terms of showing environmental responsibility. This is because mining companies' environmental responsiveness is defined by the institutional forces operating in the communities where they operate. This reflects both the initiatives undertaken by the communities and the institutional and regulatory forces at play in such communities. As Obara and Jenkins (2006) mentions, these forces tend to be weak. Clearly, the mining companies most of which are TNCs have a lot more to do in terms of CSR in general and ER in particular.

However their efforts can be enhanced by initiatives undertaking by the communities in terms of environmental protection like tree planting along river banks. Such actions could catalyse the efforts of the mining companies at improving the use of technologies that help restore some of the degraded lands associated with their mining activities. Further the creation of the right institutional forces such as community environmental foundations could motivate the mining companies to support community foundation initiatives geared at environmental restoration and protection.

The current situation where NGOs protest mining which some would argue contributes a lot to the countries development should not be the only option for them. NGOs should create the right 'institutional forces' by involving in water research and pollution control. This can motivate mining companies to channel their environmental responsibility and responsiveness as well as other corporate social responsibility initiatives towards this direction. This can also make the mining companies improve their pollutant treatment technologies. National laws can also help in this direction.

As a point of emphasis, one important lesson from this study implies enhanced institutional pressures from regulators and local communities can bring about the desired environmental change. It has strategy implications, in terms of how communities should be organised to help industries control pollution, raw material use and achieve environmental sustainability. Community and regulative response to a large extent is a function of how industries will react to the growing social and environmental problems they are responsible for.

8.8 Summary

Understanding the forces that drive corporate environmental responsiveness on a local level provides important lessons for corporate executives, policy makers, and groups who benefit (including communities) 'to create the right forces' to serve as drivers for companies to undertake corporate social and environmental responsibility.

Current assessment of the Ghanaian situation has provided an overview on the issue. Corporate social and environmental responsibility has been used as proxy measure of environmental performance by the mining Industry. Among other things, the findings showed that CSR as *"preached"* by the mining companies was to some extent inconsistent with CSR as *"perceived"* by the mining communities. The evidence thus

seems to suggest a lot more has to be done by the mining companies to achieve high environmental performance. Finally although the findings from this present investigation does not dispute Marquis et al's (2007) theory, the author does not hesitate to recommend that further studies be carried out in Ghana with an extensive data set to further understand the institutional pressures that determine the degree to which TNCs are motivated to act socially responsible. This will serve as a spring board to influence or change the institutional character operating where large corporations and TNCs operate in order to enjoy environmental improvements.

9. Addressing constraints to corporate environmental performance in Ghana

9.1 Introduction

Earlier chapters have evaluated environmental management in industry and exposed the associated constraints. In this present chapter, an emphasis is placed on addressing these constraints. Although industry showed strength in dealing with issues relating to making effort to meet regulatory requirements, a lot remains to be done in the adoption of voluntary codes of conduct. Earlier chapters have argued inadequacy of the regulatory frame work and inadequate enforcement of regulations as some of the reasons accounting for the constraints. As shown in earlier chapters, policy tools for managing the corporate environment include command and control regulations, market based approaches, information based approaches as well as adopting voluntary codes of conduct. Addressing constraints associated with corporate environmental management should therefore touch on the problems encountered in applying the policy tools outlined above. In this chapter, addressing constraints relating to command and control and voluntary codes of conduct are especially emphasised.

9.2 Addressing constraints relating to command and control regulations

As discussed elsewhere, it is important to improve adequacy of the law and provide capacity and logistics to government regulatory agents such as the EPA and others. Problems related to human capacity can best be solved by instituting capacity building programs to train environmental experts working for government as well as those working for Industry. Forging close collaboration between academia and Industry is also important. For example industry could sponsor academic research and in return make use of the research findings to improve their environmental performance.

Specifically too, this thesis has exposed the fact that one of the threats facing the environment in Ghana today has to do with industry's inability to internalise their environmental externalities. A two prong approach is envisaged here to solve the problem- by providing a legal basis and by firms adopting voluntary approaches which are dealt with in the next section. As mentioned earlier, the problem of plastic waste and electronic waste on land and in streams is near chronic proportions. Until now, there is no command and control regulatory framework governing this. There is therefore the need to

enact laws in this regard. As mentioned in chapter 5, the legislative framework in Ghana for example makes no provision for extended product stewardship and Design for Environment (these concepts are covered in chapter 4). There is also no framework providing basis for reducing waste volume (through increasing recovery) and increasing recycling rates or making manufacturers take responsibility for their products during its life cycle. Since electronic equipments are usually not manufactured in Ghana, there is the need to make policies that are geared towards 'green procurement' in relation to goods and equipments imported into the country. Bilateral and multilateral agreements among nations that encourage return of electronic scraps to country of manufacture, setting up central depository (take back) systems of electronic wastes that are easily recycled by companies as well as central depository systems for plastic wastes have the tendency of improving corporate environmental performance as it relates to plastic and electronic wastes. Indeed the right legislative framework as well as taxing 'non-green procurements' (imports) of electronic equipments must be put into place by government to make it easier on the part of Industry to implement such policies.

Additionally, it must be noted that because public goods such as water and air most often have no defined ownership, Economists have argued that most environmental problems emerge when there is no ownership of property or when property rights are ill defined (Nukpezah and Ertel, 2008). This results in the *tragedy of the commons,* a situation where public goods or open access resource such as air and water are polluted with impunity. To avert the tragedy of the commons, firms need to internalise their externalities. One way of making this possible is for the government to tax businesses for environmental damage and to put in place legislation to regulate their activities. Environmental taxes are therefore a means of internalising environmental externalities. By increasing the costs of polluting activities, environmental taxes discourage unnecessary pollution and waste (Hunter et al., 2007). Another way of doing this is for government to vest ownership of open access resources in individuals or communities. Hence it is recommend that communities should form community watch groups through the local assembly and should bring pressure to bear on companies polluting with impunity to bring such pollution under control. This could be applied to regulate pollution due to electronic and plastic wastes mentioned earlier.

9.3 Addressing constraints related to adoption of voluntary codes of conducts

This thesis has argued that laws are chiefly reactionary in nature (chapter 2) and sometimes slow in coming into being which calls for ethical base approaches to supplement command and control regulations. For example, regarding electronic wastes, there are no laws on its management because hitherto this was not a problem. Hence the need for companies to use good judgement in taking responsibility for their products becomes justified. There is therefore the need for industry in Ghana to adopt more voluntary standards to improve their environmental performance. As noted in this thesis, uptake of voluntary codes such as EMS is low (chapter 6). In this regard, the EPA is encouraged to serve as a conduit in creating awareness and encouraging Industry to adopt more voluntary options to improve their environmental performance. The government can also have a special role in this by promoting policies that ensures organisations that adopt more environmentally friendly approaches and voluntary codes win government contracts. A similar approach has been used successfully in Australia where government encourage companies to voluntarily meet certain environmental standards but actually makes it compulsory for companies wanting government contract to meet those standards (Sullivan, 2005).

On the theoretical level, several authors have argued on how to achieve corporate sustainability. For example, the Global Reporting Initiative (www.globalreporting.org) categorises corporate sustainability performance into 3 main areas based on the three pillars of sustainability- economic, ecological and social. Sexton *et al.,* (1999) proposed a model for business sustainability in the long run (figure 9.1). They argue that sustainability suggests that human and other life will flourish on the earth forever. Their view of sustainability is consistent with the Brundtland commission's definition as well as the concepts and principles espoused in chapter 2 of this thesis. Sexton *et al.,* further (1999) provide a practical definition of sustainability as:

"a possible way of living or being in which individuals, firms, governments, and other institutions are responsible for taking care of the future as if it belonged to them today, for equitably sharing the ecological resources on which the survival of human and other species depends, and for assuring that all who live today and in the future will be able to."

Indeed this definition of sustainability implies going beyond regulative requirements as posited earlier. Four distinct stages that gradually lead toward sustainability in a firm are identified in the literature (Sexton et al., 1999):

Business as usual: This stage involves a passive concern about environmental problems. This was the characteristic stage at the onset of corporate environmentalism where massive fish kills for example occurred and plant accidents were left to operating personnel. Clearly there were no strategies to curb environmental incidents partly due to weak laws and inadequate regulations at the time.

Compliance stage: This stage corresponds to meeting government environmental requirements or complying with government regulations. It often does not involve going beyond the minimum requirement by law. As Sexton *et al.,* (1999) points out, generally the compliance era began in the 1970s when the environment began to hit the headlines. During this period environmental damages began to be exposed due to increase knowledge on the fate of environmental pollutants. Laws and other governmental regulations became increasingly stronger and complying with government regulation was incentive enough for most industries to avoid been shutdown. The response of firms, globally therefore was to establish new functions to comply with the largely technical requirements of many new regulations that flowed from the laws (Sexton *et al.*, 1999). As shown in chapter 7 of this thesis, most industries aim only to achieve government regulatory requirements and do not go beyond this point. Thus although they may score high in environmental performance in relation to the law, this does not usually achieve sustainability since performance is limited by the legal framework. Based on this, it could be argued, corporate environmental governance in Ghana is at the compliance stage. Clearly a lot more must be done to achieve sustainability.

Prevention and strategy: This stage involves strategic environmental behaviour on the part of most firms. In the US for example, public disclosure requirements forced companies to look more carefully at their relations with stakeholders *beyond* customers and stockholders. As Sexton *et al.,* (1999) documents, firms began to envision a positive strategic side to environmental management. Reducing emission for example was considered good public relations and having positive political value. Strategies in this phase of evolution start to transcend mere compliance with government standards and

include the voluntary establishment of stricter emission controls as being consistent with corporate values (Sexton *et al.,* 1999). Thus the stage of prevention and strategy goes beyond mere compliance. It is worth noting that this is the global picture. There is the need for Ghanaian firms to go beyond mere compliance by adopting voluntary standards such as EMS and others discussed in this thesis to improve their environmental performance.

Stage of sustainability

Achieving sustainability means redefining the responsibility of business, gravitating it more towards *stakeholders* rather than *shareholders* and incorporating future actors into the model as shown in chapter 2, figure 2.1. The view that the responsibility of business is towards its shareholders which is profit making centred is therefore a construct that must be deconstructed. Hence, to move a firm towards the sustainability phase means movement toward better environmental outcomes (based on excellent environmental decision-making). This is grounded in broadening the underlying processes by which firms take decisions. As Post et al., (2002) posits, industry should be oriented towards creating value for all its stakeholders including the environment and this new industrial mentality would be helpful in addressing some of the environmental challenges in Industry in Ghana.

The Global Reporting Initiative (www.globalreporting.org) provided detailed framework of this stakeholder view for assessing corporate sustainability based on the three pillars of sustainable development articulated in Rio de Janeiro during the earth summit in 1992. These three pillars include economic, ecological and social performance indicators (table 9.1). Corporate environmental governance is therefore related to corporate sustainability and to effectively address constraints to environmental performance in Ghana, there is the need to integrate these indicators into business practices.

Table 9.1: Indicators for corporate sustainability based on the three pillars of sustainable development

Economic Performance	Ecological performance	Social performance
Customers Suppliers Employees Investors Public sector	Material Energy Water Biodiversity Emissions Waste water and garbage	Employment Industrial relations and management Health and safety Community relations

Globally the problems associated with instituting a new culture of doing things which would eventually achieve sustainability have been recognised. Indeed this is seen to be a set back to achieving sustainability in Ghanaian Industry. There is therefore the need to institutionalise voluntary codes and environmental management culture in Ghanaian Industry.

Giddens (1984) in his theory on organisations argues that decisions are rooted in the *culture* of firms and follow routines that have become deeply embedded in that culture. Organisational culture refers to the values, norms, beliefs and practices that govern how an institution functions (Goodpaster, 2004). Giddens (1984) points out that new decision-making pattern come only when the underlying *structures* that give cultures their characteristic shapes are themselves changed. *Culture* is the general atmosphere and practices permeating in the firm. The *structures* available to a firm are the (1) patterns of authority which is reflected in board governance and management style. (2) tools which involve technologies- cleaner or otherwise available to the firm to effect the needed change towards environmental sustainability.

Hence to achieve sustainability will require a change or reorientation in the culture and norms, principles, mission, vision and belief structures of the firm. Indeed Vazquez and Liston-Heyes (2008) have shown that corporate discourse (in the form of mission statements and corporate philosophies) affects the corporate mindset and correlates positively with corporate environmental performance. Thus a firm that desires to strive towards sustainability or perform well on corporate environmental governance must

strive to create an enabling culture and structure based on the stakeholder-value centred model of business mandate. To achieve this, a person-organisation fit approach to selecting board members is needed. In other words, board members who have high regards for environmental protection or have high environmental values should be appointed for Industries that intend achieving sustainability.

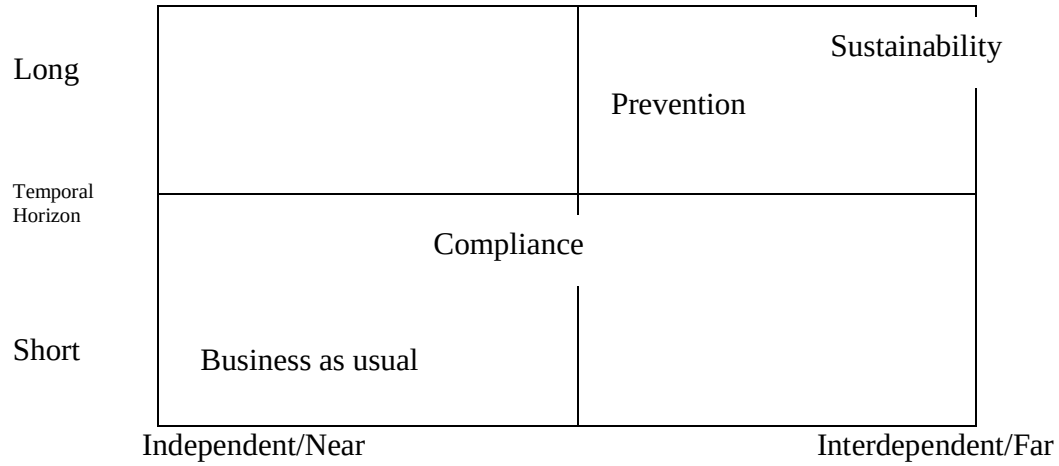

Figure 9.1: An environmental strategy matrix for the firm (Source: Sexton et al., 1999)

Further, to achieve sustainability by a firm requires significant change in attitudes, beliefs, core technology, and organisational shape (DiMaggio and Powell, 1991). Stakeholder dialogue and engagement shapes the worldview or the belief structures of firms and may make them environmentally conscious and shift their value in accordance to that of stakeholders, eventually towards sustainability. As the figure above (figure 9.1) shows, sustainability demands a strategic framework situated near the upper right-hand corner of the grid, stretching the time and socio-technical dimensions far beyond familiar territory (Sexton et al., 1999). Companies committed to moving toward a sustainable set of structures can speed the process by adopting a thematic or programmatic package that provides vision, policies, priorities, and performance goals containing some of the sustainable beliefs and norms as well as principles and concepts itemised earlier (Sexton et al., 1999). Once such a program is created, a firm can build its core competence around sustainability themes and the learning it gains through new practices (Sexton et al., 1999).

Thus far this section has established that achieving environmental sustainability in a firm involves shifting from the business-as-usual mentality and moving way beyond compliance and prevention. Achieving sustainability involves structural changes in firms' belief systems. Hence good environmental outcome based on excellent environmental decision-making would involve organisational transformation. Organisational change involves the unlearning of what has been ingrained over the organisation's history. It involves unlearning old assumptions and routines which exclude the importance of the environment (Welford, 1997). As Sexton et al., (1999) put it in the last years of pollution control, 'a command-and-control, adversarial based, media-segmented mind set has been established within the corporation, and internally directed environmental solutions will not be found as long as this mind set prevails'. However, often corporations meet with resistance in the process of trying to effect change. Employees may resist change because of *habitual inertia* and *threats to established power bases* (Sexton et al., 1999). Habitual inertia reflects the procedural change associated with organisational transformation. Employees may already have an entrenched way of doing things (such as not following a new policy of separating waste at source, throwing things about and not caring about the environment) and may not be comfortable with new ways or methods of doing things that could reduce pollution and hence the resistance. Further, changes although may be beneficial to the organisation and the environment as a whole, it may however negatively affect people with established power bases- i.e. those benefiting from the old ways of doing things. Additionally, organisational transformation may corrode the authority of some employees since their positions may no longer be relevant to the new organisational structure which may cause them to resist change. Kotter (1995) provides a framework for implementing and managing organisational change towards sustainability.

As mentioned earlier, environmental culture can be developed and entrenched in the firm through organisational change and learning. Northcraft and Neale (1994) identify 4 phases of the organisational transformation process. They include a problem *diagnosis* phase, *unfreezing* phase, phase of *movement* and *refreezing* phase (figure 9.2). Kotter (1995) argues that transformation efforts fail sometimes because organisations may choose to skip steps involved in the transformation process. This means the change process is an evolutionary one that must be allowed to run its course. Kotter (1995) also

identifies several steps within the 4 phases of the transformation process that allows for effective change management. Figure 9.2 (p.120) shows a road map for organisational change geared towards entrenching an environmental culture. As mentioned earlier, stakeholder dialogue usually creates a new consciousness in management. Such external pressures arising and internal demand should cause managers to formulate an effective organisational change strategy that restructures the motivations and objectives of the entire organisation to make better environmental decisions (Sexton *et al.,* 1999). The 4 stages that Ghanaian companies can use to institutionalise environmental management change can be summarised as follows:

Diagnostic phase: This phase involves the recognition that there is a problem. The scope of the problem is established and the framework or scope of change needed to effect the transformation is defined within a framework of the organisational purpose, structure, internal relationships, reward structures, and leadership systems desired (Sexton et al., 1999).

Phase of Unfreezing: This phase involves preparing the organisation for change. It includes doing away with all old assumptions which exclude environmental considerations from business decision-making and operations. Further old knowledge and assumptions has to be unlearnt and a culture of learning new ones established (Welford, 1997). This phase is designed to lower the barriers to resistance mentioned earlier. To effectively go through this unfreezing phase, there is the need to create a *sense of urgency*. This is an obvious way in which the organisation can be motivated into action. Some of the triggers for initiating change may be due to a company's competitive situation, market position, technological trends, financial performance (Sexton et al., 1999), pressure from customers and regulatory agencies and enactment of international agreements. The next stage within the unfreezing phase as shown in the diagram is to *form a powerful guiding coalition.* This involves having a broad based support for the anticipated change from employees. It involves 'courting' important employees and other stakeholders whose consents are not inimical to the success of the operation. Once such a guiding coalition is established, there is the need to create a vision throughout the organisation for the changes to be effected. This vision for the future should be relatively

easy to *communicate*. The vision communicated should prove acceptable and attractive to all stakeholders.

The movement phase: This phase involves the actual implementation of the vision once the foundation has been laid (Sexton et al., 1999). The transformation process gets real when management team *communicates* the vision by clearly articulating it and integrating it into all aspects of the firms' goals and objectives. This includes integration into speeches, newsletters and employees training. Management should be exemplary in this direction. Such environmental culture should be standardised throughout the firm and there should not be two set of rules- one for managers and another for other staffs. Once this is achieved, others should be empowered to act. Additionally, rewards and credits should be given to employees where environmental protection results in short-term wins. Such wins should be emphasised by management. This builds momentum and catapults workers towards achieving greater environmental heights and entrenching the new culture into them. Further, consolidating improvements and producing more change requires management not to rest on its oars as a result of short-term wins. Rather, this should lead to improvement in the change management seeks to bring.

Refreezing phase: This stage involve institutionalising the required change once it has been implemented. The new change should be consolidated and should become part and parcel of corporate culture. Part of the process of institutionalisation includes communicating to employees how the new changes have helped the organisation improve its environmental performance (Sexton et al., 1999). Additionally, this new phase involves establishing the new changes into the formal rules and informal habits of the organisation. This changes stand the test of time if they are self sustaining. In other words employees get accustomed to doing things the new way even in the absence of management oversight.

Thus far it has been established in detail how institutionalising a new environmental culture in a firm to aid the firm's move towards sustainability can be effected. However the transformation process becomes more effective when there is involvement of all and reward structures are associated. As Welford (1997) observes, "*it may appear that when*

the top managers are the key people promoting the environmental strategies, the changes end up being planned by the management group, and then pushed down in the organisation". Best corporate management practices therefore requires the enlistment and the participation of all and also establishing reward systems for such transformation process to be sustainable. For example using an interactive intranet communicating system or placing suggestion boxes at vantage points for workers to suggest improvements in the transformation and weekly reward of best suggestion instils community ownership in employees and they feel part and parcel of the decision making process. Hence as Welford (1997) points out, such approach (bottom-top) averts the danger of employees not developing an ownership of the issue. It also prevents environmental efforts from remaining as statements or credos and practical improvements not realised (Welford, 1997). Indeed one finding from the present study was the poor translation of corporate objectives and policies into measurable metrics. However companies can reduce this gap by adopting the model for institutionalising environmental management culture in Ghana. Finally, for the new environmental culture to be the norm in the long run, new employees should only be accepted through an interview process when their mentality fits the new corporate culture. Alternatively they can be 'indoctrinated' through orientations to accept the organisation's preferred way of doing business.

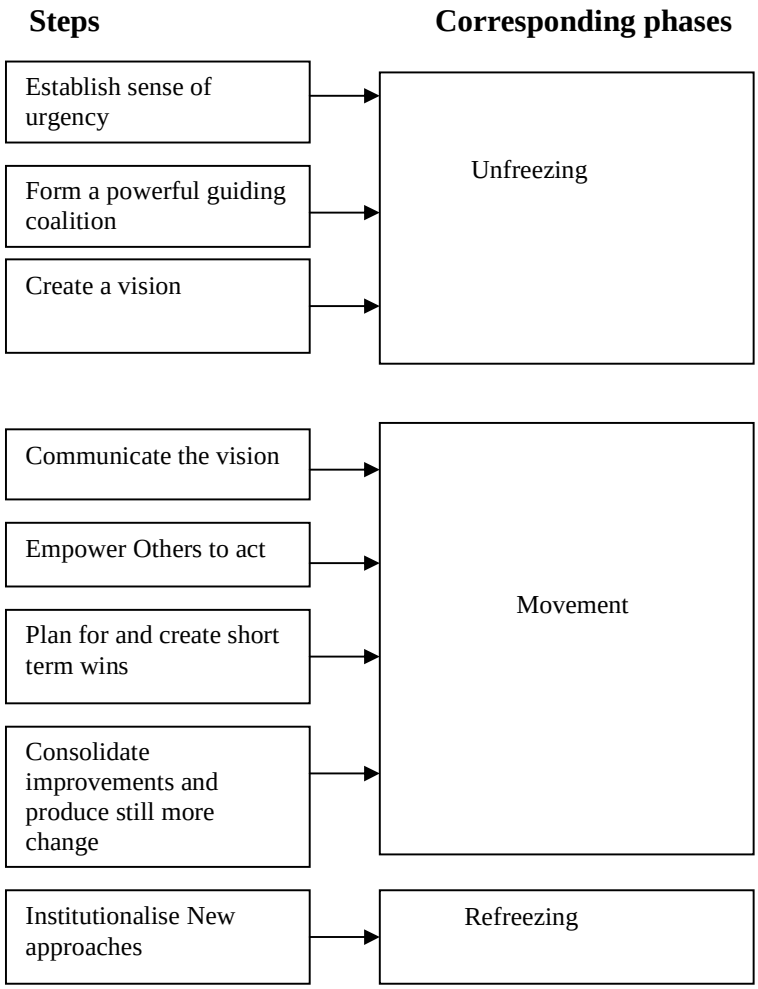

Figure 9.2: Steps and Phases involved in Institutionalising environmental management culture in a firm (Adapted from Sexton *et al.,* 1999, *In* Nukpezah and Ertel, 2008)

One other finding in this present research is that SMEs lag behind large companies in their environmental performances and their adoption of voluntary standards. Several reasons including lack of financial abilities, under verification of their environmental performance by government agencies compared to large companies and lack of technical capacities have being enumerated to account for this. An effective way to improve their environmental activeness and performance could be collaboration through networks (Hallinan, 2003). The Hackesfor model which is a model developed to implement group certification of ISO 14001 in Sweden is a way to improve SMEs environmental activeness and performance (Hallinan, 2003). Group certification allows SMEs to achieve environmental targets at reduced cost. Thus this solves the problems of financing

associated with low uptake of EMS especially by SMEs. The EPA could encourage firms in Ghana to adopt such a model to improve their environmental performance. This is one way companies can use to address the constraints associated with their environmental performance. This should partly be in response to addressing the financial burden faced by SMEs in addressing environmental concerns. As Hallinan (2003) explains, group certification allows SMEs to take advantage of economies of scale and scope, information and knowledge spill-overs; increased individual capabilities and better access to specialised inputs and infrastructure. These can lead to increased productivity and enhanced competitiveness and in the case of environmental management, they may allow SMEs to access resources at a more affordable cost through initiatives such as joint purchasing of education, which can reduce costs in the long run (Hallinan, 2003).

The Hackesfor model was originally applied in an industrial district in Sweden. This model allows group certification. Each enterprise within the group has an EMS of its own that fulfils the requirements of ISO 14001. Each SME has its own ISO 14001 certificate and in this way the Hackefors model does not differ from other EMSs (Ammenberg and Hjelm, 2002).

The model (figure 9.3) requires every company to have an environmental coordinator and these coordinators together form the EMS group. From the EMS group, a steering committee consisting of seven of the environmental coordinators is chosen, which in turn chooses a central coordinator to oversee the group's running. There is also a support group consisting of a number of individuals from the participating companies, who help support the general coordinator, the steering committee and the environmental coordinators of each firm. This model sees proposals prepared by the steering committee and decisions made by the EMS group. The steering committee, support group and central coordinator together can be compared to the central environmental staff in an industrial concern (Hallinan, 2003). The central coordinator can be from a company within the network or from a company outside. This model can be adopted and modified by Ghanaian Industry to achieve group certification which would allow them to cut down cost and achieve improved environmental actions and performance. Figure 9.3 provides a schematic of the Hackefors model. Finally in addition to command and control regulations as well as voluntary codes of conducts, information based approaches such as

ecolabelling could be considered in addressing constraints to environmental management issues by corporate bodies in Ghana.

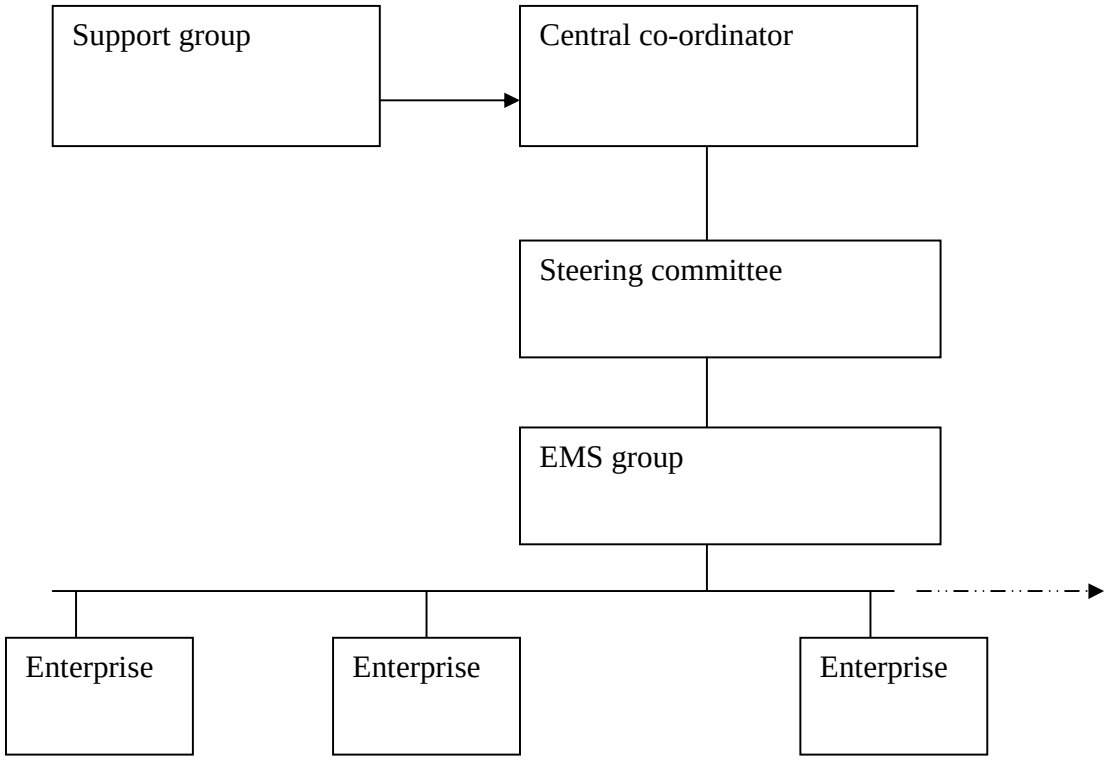

Figure 9.3: The Hackefors model (Source: P. Hallinan, 2003): Adapting it to suit Ghana's SMEs is one way of improving environmental performance

9.4 Addressing constraints related to CSR of mining firms

Chapter 8 documents the contribution made by mining activities mostly gold mining to the Ghanaian economy. The deleterious impacts of mining activities in the country have been established. The chapter has also argued that mining activities can be performed to be consistent with environmental protection. Although complete restoration of degraded mining lands may not be achieved, collaboration between mining companies and communities are needed to achieve sustainability in mining. There is the need for both community leaders and top management of mining firms to act to address problems associated with mining. As argued in chapter 8 the right institutional forces such as regulative forces, social normative and cultural cognitive forces must be at play in

communities where mining occur to bring about optimal environmental responsibility and benefits to the communities. Thus there is the need for community leaders and other stakeholders to ‘manipulate’ the kind of institutional interactions existing in mining communities to achieve sustainability. As argued, one way should be not just protestation on the part of the community but also when communities take initiative such as tree planting and pollution control activities, it tends to motivate the mining companies to both improve the technologies they use in mining and also support rehabilitation initiatives by the communities. This results in environmental performance by the mining companies and also environmental benefits to the communities.

9.5 Summary

This chapter has provided a roadmap for addressing constraints associated with corporate environmental management in Ghana. The chapter emphasises the need to use command and control, information based and adoption of voluntary codes of conduct to address these issues. With respect to the mining companies, a strategy of adopting and enhancing the institutional forces present in the mining communities has been emphasised. The next and final chapter provides concluding discussions and recommendations.

10. Concluding discussions and recommendations

10.1 Introduction

Conclusively, this thesis has looked at corporate environmental governance in Ghana. The study has developed a model based on 22 indicators in 3 thematic areas (chapter 3 and 7) to evaluate corporate environmental performance in manufacturing Industries. Additionally, improving environmental responsiveness and social responsibility of mining companies have been studied from an institutional perspective. Chapter 1 has provided a general introduction and scope of the study, while chapter 2 has provided a conceptual foundation upon which the thesis is based. Through a qualitative research approach, analyses of environmental management policy instruments have been carried out. The legal framework governing environmental governance in Ghana has been analyzed by means of a SWOT analysis. Further, empirical studies on environmental management practices and corporate environmental performance have been undertaken in chapters 6 and 7. Among other things too, a comprehensive strategy for addressing constraints to environmental management practice and culture in Ghana has been proposed.

10.2 Summary of research findings

The main research objectives listed in chapter 1 have been achieved and the findings could be summarized thus:

- Although the legal framework, ACT 490 provides a comprehensive framework for environmental protection in Ghana, the regulatory framework has weaknesses as well. For example the framework and its legislative instruments thus far have been mute on Extended Product Responsibility (EPR) and Design for Environment (DFE). This makes it easier for firms not to internalize their environmental externalities. Further, the penalty associated with enforcement powers is weak and also there are not enough structures provided to ensure the smooth implementation of the framework.
- Corporate environmental performance within voluntary framework showed low performance. For example uptake of EMS out of 120 industries sampled was 15.

In terms of other elements of voluntary corporate environmental policy, the sampled industries showed relatively weak performance in emergency preparedness and swift response to environmental incidents as well as addressing environmental management ambitions. Further, performance on waste separation at source was the lowest. However regarding performance relating to conformance to the law (mandatory), the sampled industries performed relatively high. This may well imply that giving "legal backbone" to some of the voluntary codes could result in improved environmental performance and quality.

- With regards to firms internalizing their environmental externalities, there was little evidence from the study to support this hypothesis. On the contrary it was found that companies do not take responsibility for their products outside the legal and regulatory framework operating in the country. This suggest enacting new laws to cover extended product responsibility and environmental taxation could be helpful in helping overcome environmental problems due to externalities. In addition, stakeholder theory, business ethics and CSR as espoused in this thesis are other areas for companies to internalize their environmental externalities.

- Current CSR practices carried out to some extent in the mining regions include livelihood restoration projects and community development projects. Although plans for environmental impact mitigation exist, there is little evidence of actual implementation. The study found that there is a difference in CSR as "preached" by mining companies and as "perceived" by local communities where the mining companies operate. Although mining provides positive impact in terms of contributing 5% GDP, there are also negative environmental and social impacts including loss of livelihood (social), environmental impacts such as vegetation loss, dust pollution and negative effects of blasting, pollution of water bodies with silts, acid mine drainage, cyanide and mercury contamination of river bodies. Constraints to full environmental responsiveness by mining companies include ill defined (communicated) community and environmental values and weak institutional forces operating within the mining communities. Thus corporate social and environmental responsibility would be part of the corporate mentality

of mining firms only if it is a shared responsibility between the mining companies and the communities at large.

10.3 Conclusion and recommendations

A hybrid system- both command and control regulations and voluntary codes rather than over reliance on only one should be employed to achieve environmental sustainability. Three key stakeholders to ensure environmental sustainability within Industry in Ghana are Businesses, Government and Communities where such industries are found. Here is a summary of strategies to be adopted by each to address challenges posed to environmental protection.

Businesses

- Adoption of the new industrial philosophy that organisational wealth is created when industry meets expectations of all its constituents rather than expectations of shareholders only. An important constituent of industry is the environment. Hence making environmental concerns a priority to meet expectations of communities where industry operates is vital to achieve environmental sustainability
- Adoption of voluntary environmental management systems and environmental codes of conduct. This should also be encouraged by EPA
- Institutionalising good environmental management culture within Ghanaian Industries. Entrenching best environmental practices in Industry involves more than mere compliance and pollution prevention (Sexton et al., 1999). It involves structural changes in the firms' norms, core values and belief systems. Making environmental management the norm in industry often meets resistance because the changes associated with this affects some establish power bases. A step by step approach involving unfreezing old management culture and instituting new ones is prerequisite for any sustained environmental gains.

Government and Communities

Finally, the role of government and communities are needed to entrench new management culture in Ghanaian industry and salvage land, forests and water bodies especially from further pollution and degradation.

There is the need for the government to tax businesses for environmental damage and to put in place legislation to regulate their activities where relevant. By increasing the costs of polluting activities, environmental taxes discourage unnecessary pollution and waste (Hunter et al., 2007). Further, government could vest ownership of open access resources in individuals or communities. Hence it is recommended that communities should form community watch groups through the local assembly and should bring pressure to bear on companies polluting with impunity to bring such pollution under control. Finally in the research and academic arena, further studies should be carried out using a more extensive data to explore what motivates corporate environmentalism and corporate environmental responsibility in Ghana. Such a research would serve as a basis to craft a comprehensive strategy to deal with the perennial environmental impacts due to mining and other industrial activities.

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APPENDIX 1

RESEARCH QUESTIONNAIRE

My name is **Daniel Nukpezah**, a PhD student of Brandenburg Technology University (BTU), Cottbus Germany. I am carrying out a survey on environmental protection and resources conservation initiatives by Organizations in Ghana as part of my PhD research. I will appreciate it if you will please answer the following questions **as candidly as you can**! Please be assured that the responses you give are for academic purposes only.

SECTION A: GENERAL INFORMATION

(1) Company Location……. Number of workers……. Company size: a. Small b. Medium c. Large

(2). Company Type: a. Chemical/Petrochemical b. food processing c. Pharmaceutical d other (specify) …….

(3) Respondent of questionnaire: a. Environmental officer / manager b. General manager c. Other (specify) ……..

SECTION B: LEGAL AND REGULATORY REQUIREMENTS

(1) What governmental requirements are you obliged to fulfill as efforts to control negative consequences to the environment?

(a) Effluent limitation (b) Emission monitoring (c) others (specify)

(2) Has your organization complied with all environmental regulations in the past? YES NO

(3) What are the reasons for compliance/non-compliance?
…….
…….
…….
…….....

(4) In your view what is/are the **positive** impact(s) of your organizations activities on the environment ……

……
……

……
……

(5) In your view what is/are the **negative** impact(s) of your organizations activities on the environment……
……
……
……
……

(6) Please rate your organization on the following scores on a scale 1-5? (Circle 6 if not applicable)

To meet legal and government regulatory requirements	**Strongly disagree**				**Strongly agree**	**Not Applicable (N/A)**
a) My organization has complied with all government (EPA) environmental regulation requirement	1	2	3	4	5	6
b)My organization has complied with local by-laws and other environment regulations	1	2	3	4	5	6
c) The penalty for non-compliance with government regulation requirement is high (significant)	1	2	3	4	5	6
d) Environmental regulation is always enforced by EPA, the govt. regulatory agency	1	2	3	4	5	6

(7) Have you paid any fines in the past for non-compliance of govt. regulations?

YES NO

(8) Do you face obstacles in meeting with governmental regulations concerning environmental protection? YES NO
If yes please specify…….
Please provide a brief comment on why you answered the way you did in Q 6 (a) to (c) above
……
……
……
……

SECTION C: ENVIRONMENTAL PROTECTION AND RESOURCES CONSERVATION INITIATIVES

(1) Does your organization have an official policy for separating paper, plastic, organics and hazardous waste according to type? YES NO

Please state how you dispose off liquid waste……..

Please state how you dispose off solid waste……

(2) Please rate the degree to which your organization carries out the following activities on a score 1-5 (Mark 6 if not applicable)

To achieve environmental protection and conserve resources my organization	**Strongly disagree**				**Strongly agree**	**Not applicable**
a) Promptly replaces obsolete machinery with state of the art (newer) technology	1	2	3	4	5	6
b) Separates waste at source according to type	1	2	3	4	5	6
c) monitors emissions/effluent from industrial activities	1	2	3	4	5	6
d) ensures emissions/effluent meet EPA guideline standards	1	2	3	4	5	6
e)recycles/re-uses process water	1	2	3	4	5	6
f) ensures energy (electricity etc) is adequately conserved and efficiency used	1	2	3	4	5	6
g) Makes use of alternate sources of energy	1	2	3	4	5	6

If yes to 2g) above please state the alternate source(s) of energy you use ……
…….

Please state briefly why you answered the way you did in Q 2 a-g above
……
……
……
……
…….
What are the benefits from carrying out the above activities? Please state

……
.
……
.

SECTION D: MANAGEMENT COMMITMENT & CORPORATE ENVIRONMENTAL POLICY ISSUES

(1) Does your organization have a policy on environmental management? YES NO

If yes please explain briefly……...
……

(2) Does your organization have an environmental code of conduct? YES NO

(3) Please rate your organizations performance on a scale 1-5 on the following? (Circle 6 if not applicable)

To ensure proper corporate environmental governance my organization	**Strongly disagree**				**Strongly agree**	**N/A**
a) sets environmental objectives and targets	1	2	3	4	5	6
b)Identifies corporate significant environmental aspect of our work	1	2	3	4	5	6
c)Addresses all environmental management ambitions	1	2	3	4	5	6
d) complies with all legal and other regulatory requirements	1	2	3	4	5	6
e) Adheres to company's code of conduct and environmental policy	1	2	3	4	5	6
f) controls operation/process of production work that has environmental implications	1	2	3	4	5	6
g) ensures communication of environmental work (training, reporting and disclosure)	1	2	3	4	5	6
h) ensures human capacity regarding environmental protection is excellent	1	2	3	4	5	6
i) ensures existing capacity (machinery						

and technology) is excellent	1	2	3	4	5	6
j) has acted swiftly to fix broken down equipment in the past	1	2	3	4	5	6
k) has acted swiftly in response to environmental incidents/accidents in the past	1	2	3	4	5	6
l) ensures high safety standards through the use of Personal Protective Equipment (PPE)	1	2	3	4	5	6

Please explain briefly if applicable, why you answered the way you did in 3 a-l) above
……
……
……
……
…….

(4) Has your organization adopted an environmental management system (EMS)?
YES NO
If yes please answer the following questions
(a) Which management system has your organization adopted? ……..
(b)Year of initiation……..
(c) Stage of EMS process ……
a. Planning b. Environmental review c. EMS Implementation d. EMS certification
(5) If yes to Question 4 above, are there any barriers to successful implementation?
Please explain briefly:
……
……
……
……
…….

THANK YOU VERY MUCH FOR YOUR TIME

APPENDIX 2

Interview Guide for fieldwork: State regulatory Institutions

Is environmental management in manufacturing based industries statutorily protected?
Is there any existing policy for corporate environmental protection in Ghana?
Which governmental agency plays the watchdog role?
Generally do industries meet the set standards regarding government regulatory requirement?
What are the penalties industries face for flouting government regulatory requirements?
Who enforces the penalty?
Are these penalties being enforced?
What is the existing capacity for enforcement?
What should be done to increase capacity if that is the problem?
Are there any economic/fiscal incentives to industries meeting emission targets?

APPENDIX 3

Interview Guide for the Mines: Opportunities for Communities and Corporate Social Responsibility of the Mining Industry (Sector)

1. What power figures (influential people: chiefs etc) exist in the community?
2. Are there community associations?
3. What kind of communal activities are undertaken by the residents?
4. What kind of community self help initiative occurs in the region?
5. Are there NGOs, local charities, environmental foundations in the mining region where you are? If yes, list them.
6. Are you aware of local by-laws, community foundations etc that influences corporate giving?
7. What kind of opportunities in terms of jobs etc is available in the local communities there?
8. How would you rate how much the mining companies have done in terms of extending social needs and environmental conservation programs to the communities? Please explain.
9. Do mining companies help communities/institutions outside the region? Explain.
10. What are the major problems/complaints raised by local people?
11. What are the human development indicators like in the region? Where do I get additional information on this?
12. What are the common impacts of mining in the area?
13. What do the companies do in terms of responding?
14. Apart from meeting their obligations, what other social activities do the companies engage in?
15. What are the nature (type; cash etc) and level (amount) of Corporate Social Responsibility activities undertaken in the region?
16. Does this meet the demand of the community?
17. List a few mining companies and their websites I can consult

APPENDIX 4: Voluntary principles for corporate sustainability

4A: The Ceres Principle (relevant portion)

Introduction

By adopting these principles, we affirm our belief that corporations have a responsibility for the environment, and must conduct all aspects of their business as responsible stewards of the environment by operating in a manner that protects the Earth. We believe that corporations must not compromise the ability of future generations to sustain themselves.

We will update our practices constantly in light of advances in technology and new understandings in health and environmental science. In collaboration with CERES, we will promote a dynamic process to ensure that the Principles are interpreted in a way that accommodates changing technologies and environmental realities. We intend to make consistent, measurable progress in implementing these Principles and to apply them to all aspects of our operation throughout the world.

Protection of the Biosphere

We will reduce and make continual progress toward eliminating the release of any substance that may cause environmental damage to the air, water, or the earth or its inhabitants. We will safeguard all habitats affected by our operations and will protect open spaces and wilderness, while preserving biodiversity.

Sustainable Use of Natural Resources

We will make sustainable use of renewable natural resources, such as water, soils and forests. We will conserve non-renewable natural resources through efficient use and careful planning.

Reduction and Disposal of wastes

We will reduce and where possible eliminate waste through source reduction and recycling. All waste will be handled and disposed of through safe and responsible methods.

Energy Conservation

We will conserve energy and improve the energy efficiency of our internal operations and of goods and services we sell. We will make every effort to use environmentally safe and sustainable energy sources.

Risk Reduction

We will strive to minimise the environmental, health and safety risks to our employees and the communities in which we operate through safe technologies, facilities and operating procedures, and by being prepared for emergencies.

Safe Products and services

We will reduce and where possible eliminate the use, manufacture or sale of products and services that cause environmental damage or health or safety hazards. We will inform our customers of the environmental impacts of our products or services and try to correct unsafe use.

Environmental Restoration

We will promptly and responsibly correct conditions we have caused that endanger health, safety or the environment. To the extent feasible, we will redress injuries we have caused to persons or damage we have caused to the environment and will restore the environment.

Informing the Public

We will inform in a timely manner everyone who may be affected by conditions caused by our company that might endanger health, safety or the environment. We will regularly seek advice and counsel through dialogue with persons in communities near our facilities. We will not take any action against employees for reporting dangerous incidents or conditions to management or to appropriate authorities.

Management Commitment

We will implement these Principles and sustain a process that ensures that the Board of Directors and Chief Executive Officer are fully informed about pertinent environmental issues and are fully responsible for environmental policy. In selecting our Board of Directors, we will consider demonstrated environmental commitment as a factor.

Audits and Reports

We will conduct an annual self-evaluation of our progress in implementing these Principles. We will support the timely creation of generally accepted environmental audit procedures. We will annually complete the CERES Report, which will be made available to the public.

Disclaimer

These Principles established an ethic with criteria by which investors and others can assess the environmental performance of companies. Companies that endorse these Principles pledge to go voluntarily beyond the requirements of the law. The terms may and might in Principles one and eight are not meant to encompass every imaginable consequence, no matter how remote. Rather, these Principles obligate endorsers to behave as prudent persons who are not governed by conflicting interests and who possess a strong commitment to environmental excellence and to human health and safety. These Principles are not intended to create new legal liabilities, expand existing rights or obligations, waive legal defences, or otherwise affect the legal position of any endorsing company, and are not intended to be used against an endorser in any legal proceedings for any purpose.

4B: Organisation for Economic Cooperation and Development (OECD) Guidelines on Environment for Trans National Corporations (TNCs)

V. Environment

Enterprises should, within the framework of laws, regulations and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goal of sustainable development. In particular, enterprises should:

1. Establish and maintain a system of environmental management appropriate to the enterprise, including:

a) collection and evaluation of adequate and timely information regarding the environmental, health, and safety impacts of their activities;

b) establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives; and
c) regular monitoring and verification of progress toward environmental, health and safety objectives or targets.

2. Taking into account concerns about cost, business confidentiality, and the protection of intellectual property rights:

a) provide the public and employees with adequate and timely information on the potential environment, health and safety impacts of the activities of the enterprise, which could include reporting on progress on improving environmental performance; and
b) Engage in adequate and timely communication and consultation with the communities directly affected by the environmental, health and safety policies of the enterprise and by their implementation.

3. Assess, and address in decision-making, the foreseeable environmental, health, and safety-related impacts associated with the processes, goods and services of the enterprise over their full life cycle. Where these proposed activities may have significant environmental, health, or safety impacts, and where they are subject to a decision of a competent authority, prepare an appropriate environmental impact assessment.
4. Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage.
5. Maintain contingency plans for preventing, mitigating, and controlling serious environmental and health damage from their operations, including accidents and emergencies; and mechanisms for immediate reporting to the competent authorities.
6. Continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as:

a) Adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise;
b) Development and provision of products or services that have no undue environmental impacts; are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;
c) Promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise; and
d) Research on ways of improving the environmental performance of the enterprise over the longer term.

7. Provide adequate education and training to employees in environmental health and safety matters, including the handling of hazardous materials and the prevention of environmental accidents, as well as more general environmental management areas, such as environmental impact assessment procedures, public relations, and environmental technologies.
8. Contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection.

4C: The ICC Business Charter for Sustainable Development Principles for Environmental management

1. *Corporate priority.* To recognise environmental management as amongst the highest corporate priorities and as a key determinant to sustainable development; to establish policies, programs, and practices for conducting operations in an environmentally sound manner.

2. *Integrated management.* To integrate these policies, programs, and practices fully into each business as an essential element of management in all its functions.

3. *Process of Improvement.* To continue to improve corporate policies, programs, and environmental performance, taking into account technical developments, scientific understanding, consumer needs, and community expectations, with legal regulations as a starting point; and to apply the same environmental criteria internationally.

4. *Employee education.* To educate, train, and motivate employees to conduct their activities in an environmentally responsible manner.

5. *Prior assessment.* To assess environmental impacts before starting a new activity or project and before decommissioning a facility or leaving a site.

6. *Products and services.* To develop and provide products or services that are efficient in their consumption of energy and natural resources; and that can be recycled, reused, or disposed of safely.

7. *Customer advice.* To advice, and where relevant, educate, customers, distributors, and the public in the safe use, storage, and disposal of products provided; and to apply similar considerations to the provision of services.

8. *Facilities and operations.* To develop, design, and operate facilities and conduct activities, taking into consideration the efficient use of energy and materials, the sustainable use of renewable resources, the minimisation of adverse environmental impact and waste generation, and the safe and responsible disposal of residual wastes.

9. *Research.* To conduct or support research on the environmental impacts of raw materials, products, processes, emissions, and wastes associated with the enterprise and on the means of minimising such adverse impacts.

10. *Precautionary approach.* To modify the manufacture, marketing, or use of products or services or the conduct of activities, consistent with scientific and technical understanding, to prevent serious or irreversible environmental degradation.

11. *Contractors and suppliers.* To promote the adoption of these principles by contractors acting on behalf of the enterprise, encouraging, and, where appropriate requiring improvements in their practices to make them consistent with those of the enterprise; and to encourage the wider adoption of these principles by suppliers.

12. *Emergency preparedness.* To develop and maintain, where significant hazard exist, emergency preparedness plans in conjunction with emergency services, relevant authorities, and the local community, recognizing potential transboundary impacts.

13. *Transfer of technology.* To contribute to the transfer of environmentally sound technology and management methods throughout the industrial and public sectors.

14. *Contributing to the common effort.* To contribute to the development of public policy and to business, governmental and intergovernmental programs, and education initiatives that will enhance environmental awareness and protection.

15. *Openness to concerns.* To foster openness and dialogue with employees and the public, anticipating and responding to their concerns about the potential hazards and impacts of operations, products, wastes, or services, including those of transboundary or global significance.

16. *Compliance and reporting.* To measure environmental performance; to conduct regular environmental audits and assessments of compliance with company requirements, legal requirements, and these principles; and periodically to

provide appropriate information to the Board of Directors, shareholders, employees, the authorities and the public.

4D: The Caux Principles (Ethical Principles for Sustainable Business)

Introduction

The Caux Round Table believes that the world business community should play an important role in improving economic and social conditions. As a statement of aspirations, this document aims to express a world standard against which business behavior can be measured. We seek to begin a process that identifies shared values, reconciles differing values, and thereby develops a shared perspective on business behavior acceptable to and honored by all.

These principles are rooted in two basic ethical ideals: kyosei and human dignity. The Japanese concept of kyosei means living and working together for the common good enabling cooperation and mutual prosperity to coexist with healthy and fair competition. "Human dignity" refers to the sacredness or value of each person as an end, not simply as a means to the fulfillment of others' purposes or even majority prescription. The General Principles in Section 2 seek to clarify the spirit of kyosei and "human dignity," while the specific Stakeholder Principles in Section 3 are concerned with their practical application.

In its language and form, the document owes a substantial debt to The Minnesota Principles, a statement of business behavior developed by the Minnesota Center for Corporate Responsibility. The Center hosted and chaired the drafting committee, which included Japanese, European, and United States representatives.

Business behavior can affect relationships among nations and the prosperity and well-being of us all. Business is often the first contact between nations and, by the way in which it causes social and economic changes, has a significant impact on the level of fear or confidence felt by people worldwide. Members of the Caux Round Table place their first emphasis on putting one's own house in order and on seeking to establish what is right rather than who is right.

Section 1. Preamble

The mobility of employment, capital, products and technology is making business increasingly global in its transactions and its effects. Law and market forces are necessary

but insufficient guides for conduct. Responsibility for the policies and actions of business and respect for the dignity and interests of its stakeholders are fundamental. Shared values, including a commitment to shared prosperity, are as important for a global community as for communities of smaller scale. For these reasons, and because business can be a powerful agent of positive social change, we offer the following principles as a foundation for dialogue and action by business leaders in search of business responsibility. In so doing, we affirm the necessity for moral values in business decision making. Without them, stable business relationships and a sustainable world community are impossible.

Section 2. General Principles

Principle 1. The Responsibilities of Businesses: Beyond shareholders toward stakeholders

The value of a business to society is the wealth and employment it creates and the marketable products and services it provides to consumers at a reasonable price commensurate with quality. To create such value, a business must maintain its own economic health and viability, but survival is not a sufficient goal.

Businesses have a role to play in improving the lives of all their customers, employees, and shareholders by sharing with them the wealth they have created. Suppliers and competitors as well should expect businesses to honor their obligations in a spirit of honesty and fairness. As responsible citizens of the local, national, regional and global communities in which they operate, businesses share a part in shaping the future of those communities.

Principle 2. Economic and Social Impact of Business: Toward Innovation, Justice and World Community

Businesses established in foreign countries to develop, produce or sell should also contribute to the social advancement of those countries by creating productive employment and helping to raise the purchasing power of their citizens. Businesses also should contribute to human rights, education, welfare, and vitalization of the countries in which they operate.

Businesses should contribute to economic and social development not only in the countries in which they operate, but also in the world community at large, through effective and prudent use of resources, free and fair competition, and emphasis upon innovation in technology, production methods, marketing and communications.

Principle 3. Business Behavior:

Beyond the Letter of Law Toward a Spirit of Trust

While accepting the legitimacy of trade secrets, businesses should recognize that sincerity, candor, truthfulness, the keeping of promises, and transparency contribute not only to their own credibility and stability but also to the smoothness and efficiency of business transactions, particularly on the international level.

Principle 4. Respect for Rules

To avoid trade frictions and to promote freer trade, equal conditions for competition, and fair and equitable treatment for all participants, businesses should respect international and domestic rules. In addition, they should recognize that some behavior, although legal, may still have adverse consequences.

Principle 5. Support for Multilateral Trade

Businesses should support the multilateral trade systems of the GATT/World Trade Organization and similar international agreements. They should cooperate in efforts to promote the progressive and judicious liberalization of trade and to relax those domestic measures that unreasonably hinder global commerce, while giving due respect to national policy objectives.

Principle 6. Respect for the Environment

A business should protect and, where possible, improve the environment, promote sustainable development, and prevent the wasteful use of natural resources.

Principle 7. Avoidance of Illicit Operations

A business should not participate in or condone bribery, money laundering, or other corrupt practices: indeed, it should seek cooperation with others to eliminate them. It should not trade in arms or other materials used for terrorist activities, drug traffic or other organized crime.

Section 3. Stakeholder Principles

Customers

We believe in treating all customers with dignity, irrespective of whether they purchase our products and services directly from us or otherwise acquire them in the market. We therefore have a responsibility to: provide our customers with the highest quality products and services consistent with their requirements; treat our customers fairly in all aspects of our business transactions, including a high level of service and remedies for their dissatisfaction; make every effort to ensure that the health and safety of our customers, as well as the quality of their environment, will be sustained or enhanced by our products and services; assure respect for human dignity in products offered, marketing, and advertising; and respect the integrity of the culture of our customers.

Employees

We believe in the dignity of every employee and in taking employee interests seriously. We therefore have a responsibility to: provide jobs and compensation that improve workers' living conditions; provide working conditions that respect each employee's health and dignity; be honest in communications with employees and open in sharing information, limited only by legal and competitive constraints; listen to and, where possible, act on employee suggestions, ideas, requests and complaints; engage in good faith negotiations when conflict arises; avoid discriminatory practices and guarantee equal treatment and opportunity in areas such as gender, age, race, and religion; promote in the business itself the employment of differently abled people in places of work where they can be genuinely useful; protect employees from avoidable injury and illness in the workplace; encourage and assist employees in developing relevant and transferable skills and knowledge; and be sensitive to the serious unemployment problems frequently associated with business decisions, and work with governments, employee groups, other agencies and each other in addressing these dislocations.

Owners/Investors

We believe in honoring the trust our investors place in us. We therefore have a responsibility to: apply professional and diligent management in order to secure a fair and competitive return on our owners' investment; disclose relevant information to owners/investors subject to legal requirements and competitive constraints; conserve,

protect, and increase the owners/investors' assets; and respect owners/investors' requests, suggestions, complaints, and formal resolutions.

Suppliers

Our relationship with suppliers and subcontractors must be based on mutual respect. We therefore have a responsibility to seek fairness and truthfulness in all our activities, including pricing, licensing, and rights to sell; ensure that our business activities are free from coercion and unnecessary litigation; foster long-term stability in the supplier relationship in return for value, quality, competitiveness and reliability; share information with suppliers and integrate them into our planning processes; pay suppliers on time and in accordance with agreed terms of trade; and seek, encourage and prefer suppliers and subcontractors whose employment practices respect human dignity.

Competitors

We believe that fair economic competition is one of the basic requirements for increasing the wealth of nations and ultimately for making possible the just distribution of goods and services. We therefore have a responsibility to: foster open markets for trade and investment; promote competitive behavior that is socially and environmentally beneficial and demonstrates mutual respect among competitors; refrain from either seeking or participating in questionable payments or favors to secure competitive advantages; respect both tangible and intellectual property rights; and refuse to acquire commercial information by dishonest or unethical means, such as industrial espionage.

Communities

We believe that as global corporate citizens we can contribute to such forces of reform and human rights as are at work in the communities in which we operate. We therefore have a responsibility in those communities to: respect human rights and democratic institutions, and promote them wherever practicable; recognize government's legitimate obligation to the society at large and support public policies and practices that promote human development through harmonious relations between business and other segments of society; collaborate with those forces in the community dedicated to raising standards of health, education, workplace safety and economic well-being; promote and stimulate sustainable development and play a leading role in preserving and enhancing the physical environment and conserving the earth's resources; support peace, security, diversity and

social integration; respect the integrity of local cultures; and be a good corporate citizen through charitable donations, educational and cultural contributions, and employee participation in community and civic affairs.

Appendix 5A

Discarded and dumped computers and accessories-ignoring dangers to health and environment

Source: http://www.nuffy.net/articles/ghana-the-e-waste-computer-dump-for-the-world.html

Appendix 5B

E- Waste hazard in Ghana: A boy carrying discarded electronic parts ignoring the potential dangers. These are usually burnt and copper and other metal parts extracted for sale as low as 50 cents per kilo. The unwanted parts remain concentrated in the environment.
Source: http://topics.myjoyonline.com/features/200804/15293.asp

Appendix 5C

Burning of discarded e-waste for metal parts is a common practice in Ghana that can potentially lead to diseases.
Source: http://www.consumersinternational.org/Templates/Internal.asp?NodeID=97534

Appendix 6A

Consequences of Industry failure to internalise their externalities: choked streams with oil and plastic (Picture credit: Albert Adugu).

Appendix 6B

Chemu lagoon: Taken from upstream (Picture credit: Albert Adugu).

Appendix 6C

Classic problem with open access resource: Degradation of 'government' land. One way of dealing with this "*tragedy of the commons"* is to assign property rights to communities living nearby (Picture credit: Albert Adugu).

Appendix 7

Picture shows mercury in palm of illegal mining operator in toxic tailings of mining concessions left over by big companies: CSR through alternative employment and corporate environmental responsiveness could help address the situation.

Source:
http://www.cfkeep.org/html/stitch.php?s=74237754078803&id=96506504431839